Program Council

The Academic Program Councils for each college oversee the design and development of all University of Phoenix curricula. Council members include full-time and practitioner faculty members who have extensive experience in this discipline. Teams of full-time and practitioner faculty content experts are assembled under the direction of these Councils to create specific courses within the academic program.

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Edited in accordance with University of Phoenix® editorial standards and practices.
Course Syllabus

Course Title: MAT 116—Algebra 1A

Required Texts


Axia College’s Writing Style Handbook, available online at [https://axiaecampus.phoenix.edu/Writing_Style_Handbook_AxiaUOP.pdf](https://axiaecampus.phoenix.edu/Writing_Style_Handbook_AxiaUOP.pdf)

Electronic Resources

For this course, students and faculty are required to use MyMathLab®, which can be accessed through the student and faculty Web sites.

Please take advantage of the free online tutoring program offered through the Center for Math Excellence should you need additional support.

Please Note: All required text and materials are found on the aXcess course page. The aXcess page can be accessed through the Axia College of University of Phoenix Student and Faculty Web site at [https://axiaecampus.phoenix.edu/](https://axiaecampus.phoenix.edu/)
Course Overview

COURSE DESCRIPTION
This course introduces basic algebra concepts and assists in building skills for performing specific mathematical operations and problem solving. Students solve equations, evaluate algebraic expressions, solve and graph linear equations and linear inequalities, graph lines, and solve systems of linear equations and linear inequalities. These concepts and skills serve as a foundation for subsequent coursework. Applications to real-world problems are integrated throughout the course. This course is the first half of the college algebra sequence, which is completed in Algebra 1B.

TOPICS AND OBJECTIVES

Real Numbers and Algebraic Expressions
- Compare the values of integers.
- Simplify expressions using the order of operations and properties of real numbers.
- Translate phrases into mathematical expressions.
- Use substitution to evaluate algebraic expressions.

Solving Algebraic Equations and Inequalities
- Solve one-variable equations using the addition and multiplication principles.
- Determine whether a given point is a solution for a linear equation.
- Solve a formula for a variable.

More on Solving Equations and Inequalities
- Solve one-variable inequalities using the addition and multiplication principles.
- Graph one-variable inequalities.
- Determine whether a given point is a solution for a linear inequality.
- Translate sentences into inequalities.

Graphing Linear Equations
- Graph points from ordered pairs in an \((x,y)\) coordinate system.
- Determine whether a given point is a solution for a linear equation.
- Graph a linear equation using tables and intercepts.
- Find the slope of a line given two points or the equation of a line.

Functions
- Differentiate between functions and equations.
- Find function values for specific domain values.
- Determine the domain and range of a function.

Graphs of Functions
- Graph linear equations using slope and \(y\)-intercepts or \(x\)- and \(y\)-intercepts.
- Determine whether lines are perpendicular, parallel, or intersecting.
- Write linear equations using point-slope and \(y\)-intercept forms.

Systems of Equations
- Solve systems of linear equations using graphing and methods of substitution and elimination.
- Determine whether a system is consistent or inconsistent.
• Determine whether equations of a system are dependent or independent.

**Systems of Inequalities**

• Solve and graph systems of inequalities in one and two variables.

**Apply Algebraic Concepts**

• Apply algebraic concepts to solve mathematical problems.
### Point Values for Course Assignments

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Policies and Procedures

Online Weekly Schedule

The class week begins on Monday. Notice the schedule refers to “Day 1,” etc. For time management and scheduling purposes, keep the following in mind:

Day 1–Monday
Day 2–Tuesday
Day 3–Wednesday
Day 4–Thursday
Day 5–Friday
Day 6–Saturday
Day 7–Sunday

For example, when an assignment is due on Day 5, it must be posted no later than midnight Arizona time (MST) on Friday of that week.

Copyright Guidelines

Feel free to post a URL to a Web site of interest in the forum, but do not post any copyrighted material in any classroom forum—anything from an article to a cartoon—without the express permission of the copyright owner.

Attendance

In order to be in attendance during a week, post at least one message to one of the course forums on 2 separate days during the online week using your username@email.phoenix.edu address. If you are out of attendance for 3 weeks of a 9-week course, you will be automatically withdrawn and will not be eligible to receive credit or earn a letter grade. Remember that attendance is taken electronically. Please refer to the policies note that is posted by Academic Affairs as the first message in the Main forum.

Participation

Get involved! Your success, enjoyment, and learning in this course are closely related to how you engage the material presented. Participation is initiated by your instructor, who posts discussion questions (DQs) during weeks that contain a participation component. You are expected to contribute to the class discussion in a substantive way by posting two substantive notes in the Main forum for 3 out of 7 days of each week that contains a participation component. When the discussion centers on a lively topic, it is not unusual for students to read what classmates are talking about and to post multiple notes.

Please note: CheckPoints, exercises, and assignments are due on different days so you can meet attendance requirements. If you complete your assignments early, please post each assignment on its appropriate due date to ensure you meet the attendance requirements and are not auto-dropped from class.

Substantive notes go beyond “I agree” or “I see your point.” Effective responses relate theory or methods to personal experience, so feel free to comment, critique, and suggest. Think about quality and frequency as you strike up a conversation with your fellow classmates. Remember to post notes in the Main forum, to which everyone has access.

Please note: When you post an answer to the discussion question, points are given only for the discussion question portion of the grade. Your participation grade is based on substantive replies to others’ notes.
Expectations for Classroom Discussion

- Respond to assigned discussion questions under the designated threads in the Main forum.
- Read and consider your classmates' posts, and respond constructively.
- Offer personal experiences relevant to the discussion.

Late Assignments

Late assignments receive a 10% deduction for each day they are late. Assignments are late if they are not posted by midnight Arizona time (MST) of the day they are due. Assignments that are more than 4 days late will not be accepted unless we have negotiated and mutually agreed upon an alternative submission date in advance. Unless an Incomplete grade has been granted, student assignments submitted after the last day of class will not be accepted.

Please note: University of Phoenix server problems are not an excuse for late papers. If you are unable to connect to the University of Phoenix server and upload an assignment to your Individual forum, send a copy of the assignment to your instructor’s inbox or alternate email address as proof that you attempted to post the assignment on time. In your email, you must tell your instructor that you were unable to connect to the University of Phoenix server. You must then upload the assignment to your Individual forum at your earliest opportunity. Send assignments to your instructor’s inbox ONLY if the University of Phoenix server is down. An instructor cannot, by University of Phoenix policy, grade an assignment that comes to his or her personal email. It must be posted in your Individual forum to count for grading purposes. These policies are necessary because any contact outside of class forums cannot be verified or archived.

Extra Credit

The curriculum for Axia College courses is carefully designed to fit the number of course weeks, and the assignment schedule is relatively full. In order to uphold academic rigor and integrity, students must be graded based on the degree to which they fulfill the requirements of assignments listed in the syllabus. Extra credit assignments are not allowed at Axia College.

Feedback

Instructors return feedback for CheckPoints to your Individual forum by the next office day after the due date of the assignment. Feedback for written assignments is returned to the student’s Individual forum within 7 days. Instructors respond to questions submitted during established office hours the same day. Instructors respond to questions submitted outside of office hours during the next established office hours. A weekly grade summary is posted to the student’s Individual forum within 7 days of the conclusion of each week. Final course grades are submitted to the university within 7 days of the conclusion of the course.

Incompletes

An Incomplete grade may be granted only if all of the following criteria are met:

1. The instructor determines that an Incomplete grade is appropriate under the circumstances
2. Attendance requirements have been met for the course, and the student is therefore eligible for a grade
3. Student is earning a passing grade in the course at the time the Incomplete is requested
4. Student requests, in writing, a grade of Incomplete during the last week of class, prior to the course end date
5. Student and instructor enter into a written agreement containing:
   a. A course completion plan
   b. A clearly identified extended course deadline not to exceed 5 weeks from the original course end date
c. Acknowledgment that the final course grade will be reduced one (1) full letter grade in exchange for the extra time allowed to complete the coursework, regardless of the circumstances

Please Note: Unless an Incomplete grade has been granted, student assignments submitted after the last day of class are not accepted. Accordingly, grade changes are not permitted for work submitted after the end of a class.

Academic Honesty

University of Phoenix students utilize university resources with honesty and integrity. These resources include, but are not limited to, the online library, online consultation with faculty, and registration systems. In addition to truthful representation in these areas, students must acknowledge references from original works, avoid plagiarism, and use writing and formatting styles generally accepted as sound academic writing.

Privacy and Confidentiality in the Online Classroom

If at any time you would like to communicate with your instructor confidentially, you may do so via the Individual forum. This forum can be viewed only by the individual student and the faculty member.

All postings to any forum in this class are considered confidential and for consideration and discussion only by members of this class. Specifically, do not forward materials or messages from this class by email or distribute hard copies.

Grading Scale

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<tr>
<th>Score Range</th>
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<tr>
<td>100-95</td>
<td>A</td>
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<tr>
<td>94-90</td>
<td>A-</td>
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<tr>
<td>89-87</td>
<td>B+</td>
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<tr>
<td>86-83</td>
<td>B</td>
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<tr>
<td>82-80</td>
<td>B-</td>
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<tr>
<td>79-77</td>
<td>C+</td>
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Week One

Real Numbers and Algebraic Expressions

- Compare the values of integers.
- Simplify expressions using the order of operations and properties of real numbers.
- Translate phrases into mathematical expressions.
- Use substitution to evaluate algebraic expressions.

ASSIGNMENTS

1. Read objectives and welcome.
2. Read instructor’s bio and post your own bio.
   - Due Date: Day 1 [post to the Chat Room forum]
3. Read Appendix A regarding the final project requirements.
4. Read Appendix B regarding the use of Equation Editor and MyMathLab®.
5. Read Ch. 1 and sections 2.1-2.6 in Ch. 2 of Introductory and Intermediate Algebra.
7. Complete the How to Answer Questions tutorial to learn how to use MyMathLab®. Enter MyMathLab® by clicking the link provided under the Week One Materials section of your student Web site.
8. Discussion Question 1
   - Due Date: Day 2 [post to the Main forum]
   - Post your response to the following: What is the difference between an equation and an expression? Include an example of each. Can you solve for a variable in an expression? Explain. Can you solve for a variable in an equation? Explain. Write a mathematical phrase or sentence for your classmates to translate.
   - Consider translating your classmates’ phrases or sentences and explaining what clues indicate that the problems are either expressions or equations. Respond to classmates who have responded to your sentence or phrase and indicate whether or not they correctly translated the problem. Ask clarifying questions if you need more explanation, or help students who seem to struggle with the concept.
9. Discussion Question 2
   - Due Date: Day 4 [post to the Main forum]
   - Post your response to the following: What are the steps of the order of operations? Why is it important that you follow the steps rather than solve the problem from left to right? Write an expression for your classmates to simplify using at least three of the following:
     - Groupings (parenthesis, brackets, or braces)
     - Exponents
     - Multiplication or division
     - Addition or subtraction
• **Consider** participating in the discussion by simplifying a classmate’s expression, showing how the expression would be incorrectly simplified if computed from left to right, or challenging the class with a complicated expression. Respond to your initial post and provide your classmates with the answer to your expression.

10. **CheckPoint:** Algebraic Expressions

- **Resource:** MyMathLab®
- **Due Date:** Day 5 [MyMathLab®]
- **Complete** the Week One CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in Ch. 1.
Week Two

Solving Algebraic Equations and Inequalities

- Solve one-variable equations using the addition and multiplication principles.
- Determine whether a given point is a solution for a linear equation.
- Solve a formula for a variable.

ASSIGNMENTS

1. **Exercise:** Week Two Concept Check
   - **Due Date:** Day 5 [Individual forum]
   - **Post** your 50-word response to the following: How do you know when an equation has infinitely many solutions? How do you know when an equation has no solution?

2. **Checkpoint:** Linear Equations
   - **Due Date:** Day 5 [Individual forum]
   - **Complete** the Week Two CheckPoint in MyMathLab®. This activity provides the opportunity to apply concepts introduced in sections 2.1-2.6 of Ch. 2.

3. **Assignment:** Expressions and Equations
   - **Resource:** Appendix C, MyMathLab®
   - **Due Date:** Day 7 [Individual forum and MyMathLab®].
   - **Complete** Appendix C to apply the skills learned in Ch. 1 and sections 2.1-2.6 of Ch. 2 to a real-life situation.
   - **Use** Equation Editor to write mathematical equations and expression in Appendix C.
   - **Complete** the Week Two Quiz in MyMathLab®. This assignment assesses content from Ch. 1 & 2 (sections 2.1-2.6).
Week Three

More on Solving Equations and Inequalities

- Solve one-variable inequalities using the addition and multiplication principles.
- Graph one-variable inequalities.
- Determine whether a given point is a solution for a linear inequality.
- Translate sentences into inequalities.

ASSIGNMENTS

1. Read sections 2.7 and 2.8 of Ch. 2 and all of Ch. 3 of Intermediate Algebra.

2. Discussion Question 1

   - Due Date: Day 2 [Main forum]
   - Post your response to the following: Why does the inequality sign change when both sides are multiplied or divided by a negative number? Does this happen with equations? Why or why not? Write an inequality for your classmates to solve. In your inequality, use both the multiplication and addition properties of inequalities.
   - Consider solving your classmates’ inequalities. Explain how you arrived at your answers. Also, help other students who may be having difficulty solving inequalities. Ask clarifying questions if you need additional assistance.

3. Discussion Question 2

   - Due Date: Day 4 [Main forum]
   - Post your response to the following: How do you know if a value is a solution for an inequality? How is this different from determining if a value is a solution to an equation? If you replace the equal sign of an equation with an inequality sign, is there ever a time when the same value will be a solution to both the equation and the inequality? Write an inequality and provide a value that may or may not be a solution to the inequality.
   - Consider responding to a classmate by determining whether or not the solution provided is a solution to the inequality. If the value he or she provides is a solution, provide a value that is not a solution. If the value is not a solution, provide a value that is a solution.

4. CheckPoint: Solving Inequalities

   - Resource: MyMathLab®
   - Due Date: Day 5 [MyMathLab®]
   - Complete the Week Three CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in sections 2.7 and 2.8 of Ch. 2.
**Week Four**

**Graphing Linear Equations**
- Graph points from ordered pairs in an \((x,y)\) coordinate system.
- Determine whether a given point is a solution for a linear equation.
- Graph a linear equation using tables and intercepts.
- Find the slope of a line given two points or the equation of a line.

**ASSIGNMENTS**

1. **Exercise:** Week Four Concept Check
   - **Due Date:** Day 5 [Individual forum]
   - **Post** your 50-word response to the following: Explain in your own words why the line \(x = 4\) is a vertical line.

2. **Checkpoint:** Graphing Equations
   - **Resource:** MyMathLab®
   - **Due Date:** Day 5 [MyMathLab®]
   - **Complete** the Week Four CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in Ch. 3.

3. **Assignment:** Solving Inequalities and Graphing Equations
   - **Resource:** Appendix D, MyMathLab®
   - **Due Date:** Day 7 [Individual forum and MyMathLab®]
   - **Complete** Appendix D to apply skills learned in Ch. 2 & 3 to a real-life situation.
   - **Use** Equation Editor to write mathematical equations and expression in Appendix D.
   - **Complete** the Week Four Assignment in MyMathLab®. This assignment assesses content learned in Ch. 2 & 3.
Week Five

Functions

• Differentiate between functions and equations.
• Find function values for specific domain values.
• Determine the domain and range of a function.

ASSIGNMENTS

1. Read Ch. 7 of Intermediate Algebra.

2. Discussion Question 1
   • Due Date: Day 2 [Main forum]
   • Post your response to the following: What similarities and differences do you see between functions and linear equations studied in Ch. 3? Are all linear equations functions? Is there an instance when a linear equation is not a function? Support your answer. Create an equation of a nonlinear function and provide two inputs for your classmates to evaluate.
   • Find examples that support or refute your classmates’ answers to the discussion question. Provide additional similarities and differences between functions and linear equations. Challenge your classmates by providing more intricate examples of nonlinear functions for them to solve.

3. Discussion Question 2
   • Due Date: Day 4 [Main forum]
   • Post your response to the following: What is the difference between domain and range? Describe a real-life situation that could be modeled by a function.
   • Provide feedback about your classmates’ answers. Describe the values for x that may not be appropriate values even when they are defined by your classmates’ function. For example, indicate the amount of bone strength (y) in a living human body over time in years (x). It would not make sense to look at negative years, because the person would not yet be born. Likewise, looking beyond 100 years might not make sense, as many people do not live to be 100.

4. CheckPoint: Introduction to Functions
   • Resource: MyMathLab®
   • Due Date: Day 5 [MyMathLab®]
   • Complete the Week Five CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in sections 7.1 and 7.2 of Ch. 7.
Week Six

Graphs of Functions

- Graph linear equations using slope and y-intercepts or x- and y-intercepts.
- Determine whether lines are perpendicular, parallel, or intersecting.
- Write linear equations using point-slope and y-intercept forms.

ASSIGNMENTS

1. **Exercise:** Week Six Concept Check
   - **Due Date:** Day 5 [Individual forum]
   - **Post** your 50-word response to the following: How can you determine if two lines are perpendicular?

2. **CheckPoint:** Looking at Functions
   - **Resource:** MyMathLab®
   - **Due Date:** Day 5 [MyMathLab®]
   - **Complete** the Week Six CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in sections 7.3-7.5 of Ch. 7.

3. **Assignment:** Functions and their Graphs
   - **Resource:** Appendix E, MyMathLab®
   - **Due Date:** Day 7 [Individual forum and MyMathLab®]
   - **Complete** Appendix E to apply the skills learned in Ch. 7 to a real-life situation.
   - **Use** Equation Editor to write mathematical expressions and equations in Appendix E.
   - **Complete** the Week Six Assignment: Ch. 7 Quiz in MyMathLab®. This assignment assesses content learned in Ch. 7.
Week Seven

Systems of Equations

- Solve systems of linear equations using graphing and methods of substitution and elimination.
- Determine whether a system is consistent or inconsistent.
- Determine whether equations of a system are dependent or independent.

ASSIGNMENTS

1. Read sections 8.1-8.4 of Ch. 8 and sections 9.1-9.3 of Ch. 9 of Intermediate Algebra.

2. Discussion Question 1

- Due Date: Day 2 [Main forum]
- Post your response to the following: Systems of equations can be solved by graphing or by using substitution or elimination. What are the pros and cons of each method? Which method do you like best? Why? What circumstances would cause you to use a different method?
- Consider responding to your classmates by indicating pros and cons they may not have considered or persuading them to see the value of the method you like best (if you chose different methods). Describe situations in which you might use their methods of solving.

3. Discussion Question 2

- Due Date: Day 4 [Main forum]
- Post your response to the following: Review examples 2, 3, and 4 in section 8.4 of the text. How does the author determine what the first equation should be? What about the second equation? How are these examples similar? How are they different? Find a problem in the text that is similar to examples 2, 3, and 4. Post the problem for your classmates to solve.
- Consider responding to your classmates by asking clarifying questions or by expanding a classmate’s response. Also, help students solve the problem you posted by providing feedback or hints if necessary. You may also want to provide an explanation for your solution after a sufficient number of students have replied.

4. CheckPoint: Solving Systems of Equations

- Resource: MyMathLab®
- Due Date: Day 5 [MyMathLab®]
- Complete the Week Seven CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in sections 8.1-8.4 of Ch. 8.
**Week Eight**

**Systems of Inequalities**
- Solve and graph systems of inequalities in one and two variables.

**ASSIGNMENTS**

1. **Exercise: Week Eight Concept Check**
   - **Due Date:** Day 5 [Individual forum]
   - **Post** your response to the following: Describe what the graph of interval [-4,10] looks like.

2. **CheckPoint: Solving Systems of Inequalities**
   - **Resource:** MyMathLab®
   - **Due Date:** Day 5 [MyMathLab®]
   - **Complete** the Week Eight CheckPoint in MyMathLab®. This activity provides the opportunity to practice concepts introduced in sections 8.1-8.4 of Ch. 8.

3. **Assignment: Systems of Equations and Inequalities**
   - **Resource:** Appendix F, MyMathLab®
   - **Due Date:** Day 7 [Individual forum and MyMathLab®]
   - **Complete** Appendix F to apply the skills learned in Ch. 8 (8.1-8.4) & 9 (9.1, 9.2, and 9.4).
   - **Use** Equation Editor to write mathematical equations and expressions in Appendix F.
   - **Complete** the Week Eight Assignment: Ch. 8 & 9 Quiz in MyMathLab®. This assignment assesses content learned in section 8.1-8.4 of Ch. 8 and sections 9.1-9.3 of Ch. 9.
Week Nine

Apply Algebraic Concepts
• Apply algebraic concepts to solve mathematical problems.

ASSIGNMENTS

1. Capstone Discussion Question
   • Due Date: Day 3 [Main forum]
   • Post your response to the following: Has the content in this course allowed you to think of math as a useful tool? If so, how? What concepts investigated in this course can apply to your personal and professional life? In what ways did you use MyMathLab® for extra support?

2. Final Project: Final Exam
   • Resource: Appendix A, MyMathLab®
   • Due Date: Day 7 [MyMathLab®]
   • Complete the Week Nine Final Test in MyMathLab®. This test assesses content learned throughout the course.