MATH100 16

Course Summary

Course : MATH100 **Title :** Pre-Algebra
Length of Course : 16
Prerequisites : N/A **Credit Hours :** 3

Description

Course Description: This course introduces concepts of beginning algebra including the solving of basic algebraic equations that involve integers, fractions, decimals and percents. It also introduces the concepts of polynomials and the graphing of two variable equations. Emphasis is on the fundamentals of beginning algebra to ease the transition into college level mathematics courses. This course is followed by MATH101, which will introduce intermediate algebra concepts that incorporate the skills covered in MATH100.

Course Scope:

This course is delivered online and is organized into distinct parts. This course will begin with a review of basic math concepts such as fractions, decimals, integers. It will then show students how these concepts will be used to solve basic algebraic equations. The middle of the course will expand to rates, ratios, proportions and percents and solving percent equations. It will then introduce students to graphing and polynomial computation. Practical applications are provided throughout the course.

Objectives

After successfully completing this course, you will be able to:

1. Perform basic operations of whole numbers, integers, fractions, decimals and percents.
2. Define a variable and a variable expression for various real life situations.
3. Create algebraic equations using defined variables and expressions.
4. Apply algebraic rules, properties and basic mathematical operations to algebraic expressions and equations for simplification.
5. Solve algebraic equations for the defined variable or variables using algebraic and basic mathematical operations.
6. Formulate the perimeter, area and volume of various geometric shapes.
7. Interpret information from a table of data, bar graph, pictograph and line graph.
8. Plot values for solved variables of two variable equations on rectangular coordinate plane.
9. Simplify roots of numbers.
10. Apply proportions to solve real life situations.
11. Calculate the mean, median and mode of a given set of data.

12. Apply properties of exponents to simplify numeric and algebraic expressions containing exponents.
13. Identify monomials, binomials and trinomials.
14. Simplify polynomial expressions using basic mathematics operations and properties.
15. Factor polynomial expressions using greatest common factors.
16. Evaluate polynomial expressions for a given value.

Outline

Week 1: Integers and Introduction to Algebra

Learning Objectives

Course LO-1,LO-4: Order integers

Evaluate expressions involving absolute value

Add and subtract integers

Multiply and divide integers

Use order of operations with integers

Solve applications involving integers

Assignment

Week #1 Forum: Introduction

Week #1 Lesson in Limespring

Week #1 Book Exam in Limespring

APUS Honor Pledge Assignment

Week 2: Fractions Part I

Learning Objectives

Course LO-1:

Find prime factorization of any number

Write improper fractions as mixed numbers and vice versa

Calculate LCM and GCF of a number

Simplify and Multiply fractional expressions

Assignment

Week #2 Forum: Practice Problems

Week #2 Lesson in Limespring

Week #2 Book Exam in Limespring

Week 3: Fractions Part II

Learning Objectives

Course LO-1:

Divide fractional expressions

Add/Subtract fractional expressions

Add/Subtract/Multiply/ Divide mixed numbers

Solve applications involving fractions

Assignment

Week #3 Forum: Practice Problems

Week #3 Lesson in Limespring

Week #3 Book Exam in Limespring

Week 4: Applications with Fractions

Learning Objectives

Course LO-1, LO-5: Simplify complex fractions

Solve applied problems involving fractions

Solve fractional equations with multiplication

Assignment

Week #4 Forum: Practice Problems

Week #4 Lesson in Limespring

Week #4 Book Exam in Limespring

Week 5: Simplifying Expressions and Solving Equations

Learning Objectives

Course LO-1,LO-2,LO-3,LO-4, LO-5, LO-6:

Using the distributive property to simplify

Simplify and Evaluate algebraic expressions

Translate a sentence into an expression

Solve equations using addition, subtraction and division

Solving Equations using one or more principles of Equality

Solve equations involving perimeter, area and volume

Translating from English to Algebra

Assignment

Week #5 Forum: Using the Equation Editor

Week #5 Lesson in Limespring

Week #5 Book Exam in Limespring

Week 6: Exponents

Learning Objectives

Course LO-4, LO-9, LO-12:

Perform operations with exponents

Apply product rules for exponents

Simplifying algebraic fractions with exponents

Simplify square roots

Assignment

Week #6 Forum: Practice Problems

Week #6 Lesson in Limespring

Week #6 Book Exam in Limespring

Week 7: Midterm

Learning Objectives

Course LO-1,2,4,5, 6, 9, 12

Assignment

Week #7 Forum: How is it Going So Far?

Midterm Exam in Limespring

Week 8: Ratios and Proportions

Learning Objectives

Course LO-10

Applying ratio, rates and unit rates to real life situations

Writing and Solving Proportions

Assignment

Week #8 Forum: Practice Problems

Week #8 Lesson in Limespring

Week #8 Book Exam in Limespring

Week 9: Polynomials

Learning Objectives

Course LO-13 through LO-16:

Adding and subtracting polynomials

Multiplying polynomials Factoring using GCF

Assignment

Week #9 Forum: Practice Problems

Week #9 Lesson in Limespring

Week #9 Book Exam in Limespring

Week 10: Solving Equations

Learning Objectives

Course LO-1, LO2, LO5, :

Solving Equations with parenthesis

Solving equations with fractions

Using equations to solve applied problems

Assignment

Week #10 Forum: Where in real life are these concepts used?

Week #10 Lesson in Limespring

Week #10 Book Exam in Limespring

Week 11: Decimals

Learning Objectives

Course LO-1, LO-5:

Adding, subtracting, multiplying and dividing decimals

Convert between fraction and decimal

Solving equations and applied problems with decimals

Assignment

Week #11 Forum: Practice Problems

Week #11 Lesson in Limespring

Week #11 Book Exam in Limespring

Week 12: Percents

Learning Objectives

Course LO-1,LO-2: Estimating percents

Convert between fraction and decimal

Solve percent problems using equations

Solve percent problems using proportions

Solve percent applications involving commission, percent increase and decrease, discount and simple interest

Assignment

Week #12 Forum: Practice Problems

Week #12 Lesson in Limespring

Week #12 Book Exam in Limespring

Week 13: Graphing and Statistics

Learning Objectives

Course LO-7, LO-8, LO-11:

Interpret data from various tables and graphs

Calculate mean, median and mode for a given set of data

Give coordinates for plotted point

Plot a point on a coordinate plane that corresponds to an ordered pair

Find solutions to a two-variable equation

Graph linear equations

Use unit fractions to convert between U.S. units

Assignment

Week #10 Forum: Where in real life are these concepts used?

Week #13 Lesson in Limespring

Week #13 Book Exam in Limespring

Week 14: Measurement and Geometric Figures

Learning Objectives

Course LO-2, LO-6:

Convert metric units to U.S. system units

Identify angles

Find complementary and supplementary angles

Find measures of alternate interior angles

Apply Pythagorean Theorem to real life situations

Calculate perimeter, area and volume of given geometric figures

Assignment

Week #14 Forum: Practice Problems

Week #14 Lesson in Limespring

Week #14 Book Exam in Limespring

Week 15: Course review

Learning Objectives

Course LO-1-LO-16:

Review all course material.

Assignment

Week #15 Forum: Practice Problems

Review work for the course before the Final Exam next week.

Week 16: Final Examination

Learning Objectives

Course LO-1-LO-16:

Demonstrate your knowledge of college.

Assignment

Week #16 Forum: Final Debrief

Final Exam in LimeSpring

Evaluation

Instructor announcements: Bi-weekly announcements will appear on Monday and Thursday of each week in the online classroom. The announcement will discuss the assignments for the week along with any other pertinent information for the week.

Reading Assignments: Please refer to the Course Outline section of this syllabus for the weekly reading assignments.

You will be required to complete the **APUS Honor Pledge Assignment** before submitting any other work.

Please submit this in the **Assignments** area of the classroom.

Forum Assignments: Under the Forums link you will see forums set up each week. You will be showing and explaining in words the steps to practice problems from a pdf posted in the forum. Your first forum assignment will be your introduction to the classroom (this is a course requirement) and then you will have a forum for most weeks to show your practice problems. Along with those forums you will also have some 'Special Forum' assignments where you do a little research on where the concepts you are learning are used in real life as well as two opportunities to share your thoughts about the course (Midterm and End of Course). Make sure you read the full forum description for details on how you must do your posts and how to earn the credit before you post any work. The schedule for posts is in the course outline at end of syllabus, the weekly lesson packets and is noted in the Forum titles. It is your responsibility to read through all posts in each forum and not to repeat a problem already done by another student at the time you post your problem as well. You will need to read through the all posts in the problem forums before you post yours to assure you have not repeated other problems posted by fellow students. If you are working diligently on all the practice problems in the book as you should be then you will have no problem earning full participation points in the forums. The Forums will be worth 16% of your course grade.

Homework: Most weeks there will be a 'Book' in Limespring for you to complete, which includes a lesson section. Your homework score will come from your grade on the quizzes taken in the lesson section. Please refer to information in the Lessons section under Labs to learn how to access Limespring. Completion of the 'lessons' section in LimeSpring will constitute your homework grade. The homework will be worth 10% of your course grade. I will post your homework grade at the end of the class.

Weekly Book Exams: There will be a 'Book Exam' each week except for Weeks 7 (Midterm Exam), 15 (Review) and 16 (Final Exam). The Book Exam will cover the material learned that week and practiced in the Limespring lessons and workbook. You can only take the Book Exam once, but it will be open note and multiple-choice. You cannot take the Book Exam until you have completed the lessons and workbook. The due dates for the Books Exams are in the course outline below and must be followed. All tests will have a 1-hour time limit and will be worth 30 points each for a total of 390 points. The weekly exams count as 39% of your course grade.

Midterm Exam: The midterm exam will be during week 7 and will be worth 150 pts or 15% of your course grade. It will be a two-hour online, open-note exam. This examination will cover all sections of the textbook covered during the semester. It will be a multiple-choice exam with 30 questions each worth 5 points. The questions will require computations and application of the material covered during the semester. Please coordinate with the professor for any special arrangements.

Unless the professor approves alternate arrangements, students should plan to take the midterm examination during week 7. You will only be allowed to take this exam **once** except in unusual circumstances outside of your control.

Final Exam: The final exam will be during week 16 and will be worth 200 pts or 20% of your course grade. It will be a 2 1/2-hour online, open-note exam. This examination will cover all sections of the textbook covered during the semester. It will be a multiple-choice exam with 40 questions each worth 5 points. The questions will require computations and application of the material covered during the semester. Please coordinate with the professor for any special arrangements. Unless the professor approves alternate arrangements, students should plan to take the final examination during the last week of the course. You will only be allowed to take this exam **once** except in unusual circumstances outside of your control.

The points earned on the graded course assignments will determine the course grade. The final grade in the course will be based on total points.

Grading:

Name	Grade %
Forums	16.00 %
Week 1 Introduction	1.00 %

Week 2 Forum	1.00 %
Week 3 Forum	1.00 %
Week 4 Forum	1.00 %
Week 5 Forum	1.00 %
Week 6 Forum	1.00 %
Week 7 Forum	1.00 %
Week 8 Forum	1.00 %
Week 9 Forum	1.00 %
Week 10 Forum	1.00 %
Week 11 Forum	1.00 %
Week 12 Forum	1.00 %
Week 13 Forum	1.00 %
Week 14 Forum	1.00 %
Week 15 Forum	1.00 %
Week 16 Forum	1.00 %
Tests	39.00 %
APUS Honor Code and Pledge	0.03 %
LimeSpring Book 1 Exam	3.00 %
LimeSpring Book 2 Exam	3.00 %
LimeSpring Book 3 Exam	3.00 %
LimeSpring Book 4 Exam	3.00 %
LimeSpring Book 5 Exam	3.00 %
LimeSpring Book 6 Exam	3.00 %
LimeSpring Book 8 Exam	3.00 %
LimeSpring Book 9 Exam	3.00 %
LimeSpring Book 10 Exam	3.00 %
LimeSpring Book 11 Exam	3.00 %
LimeSpring Book 12 Exam	3.00 %
LimeSpring Book 13 Exam	3.00 %
LimeSpring Book 14 Exam	3.00 %
Midterm Exam	15.00 %
Midterm Exam	15.00 %
Final Exam	20.00 %
Final Exam	20.00 %
Homework	10.00 %
LimeSpring Lessons	10.00 %

Materials

Book Title: LimeSpring - access instructions provided inside the classroom

Author:

Publication Info: LimeSpring

ISBN: NA

Detailed instructions for each week's work are given in the lessons within the classroom. Course materials are provided through **Limespring**. Instructions for accessing the site are in the lessons under the Labs tab.

Students will need a calculator to successfully complete this course. The calculator should include a memory and square root function. At the student's discretion, a scientific calculator capable of performing statistical functions or a computer spreadsheet program like Microsoft Excel may be used. Students may make use of the above for all graded assignments during the course.

Web Sites

In addition to the required course texts, the following public domain web sites are useful. Please abide by the university's academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

Site Name	Web Site URL/Address
Mathematics Videos	http://www.apus.edu/media/mathWV/index.htm
Cool Math	http://www.coolmath.com
Math	http://www.math.com
Calculator website	http://www.calculator.com
Dr. Math	http://mathforum.org/dr.math/
Purple Math	http://www.purplemath.com/

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to

exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

Student Handbook

- Drop/Withdrawal policy
- Extension Requests
- Academic Probation
- Appeals

- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.