

Course Syllabus
MATH 101 - College Algebra
3 credits

Prerequisites: High school algebra is recommended but not required

Instructor: Matt Dodd, MS

Facilitator: H. Elaine Frey, MA

Contact Info: Faculty may be contacted through the Portage messaging system

Course web site address: www.portagelearning.com

Course meeting times: MATH 101 is offered continuously

Course Description: Algebra is found in many aspects of everyday life such as planning a household budget, playing sports and games, and designing complex software. The ability to successfully perform algebraic tasks is a key to success in science and medical courses and is a necessary skill in today's competitive market. MATH 101 will overview the basic fundamentals of mathematics and algebra, and then will use those concepts to introduce more advanced topics. The logical problem solving skills learned by algebra students will serve them in many other disciplines.

Course Outcomes: As a result of this course experience a student should be able to:

- Successfully perform algebraic operations
- Solve linear and quadratic equations and systems of equations
- Solve linear inequalities
- Define and give examples of functions
- Effectively perform factoring operations and evaluate polynomials
- Evaluate logarithmic and exponential expressions
- Graph lines and conic sections on the Cartesian plane
- Calculate the probability of events given sets of parameters
- Evaluate and apply arithmetic and geometric sequences
- Solve word problems using learned algebraic techniques

Each of these MATH 101 student learning outcomes is measured:

- Directly by:
- (1) module application problems (with instructor feedback)
 - (2) exams
 - (3) comparison of pre-course / final exam results

Indirectly by an end of course student-completed evaluation survey

Course Delivery: This course is asynchronously delivered online. Contact hours include 40 - 50 hours of reviewed module assignments with instructor feedback and video lectures. There are 15 additional contact hours composed of secure online exams.

It is the policy for all Portage Learning courses that only one exam be completed each day. Research on best practices in learning psychology indicates that time is needed to process material for optimal learning. This means that once an exam has been completed, the next exam will not unlock until the following day. Please plan your time accordingly. If you have a legitimate need for an exception to this policy, please contact your instructor.

Required Computer Accessories: It is recommended that students use a desktop or laptop computer, PC or Mac, when taking the course. Some tablet computers are compatible with the course, but not all features are available for all tablet computers. The latest full version of Firefox is required for the optimal operation of the Portage Learning Management System. In addition, you must have the latest full version of Adobe Flash Player installed as a plug-in in order to view any of the videos on the site. We highly recommend using a high speed Internet connection to view the video lectures. You may experience significant difficulties viewing the videos using a dial-up connection.

Required readings, lectures and assignments: Portage courses do not use paper textbooks. Students are required to read the online lesson modules written by the course author which contain the standard information covered in a typical course. Video lectures which supplement each lesson module subject should be viewed as many times as is necessary to fully understand the material.

The practice problems within the modules are not quantitatively part of your final grade, but the module work is a pass/fail component of the course and will be reviewed for completeness by the instructor. Be sure to answer all of the problems since this is an important part of adequate preparation for the exams. After you answer the practice problems, compare your answers to the solutions at the end of the module. If your answers do not match those at the end, attempt to figure out why there is a difference. If you have any questions please contact the instructor via the My Messages tab or call the help line at 1-888-724-3590 x2 especially for questions that require long answers or discussion.

Grading Rubric:

6 Module exams = 100 pts. each x 6 =	600 pts.
<u>Final exam = 120 pts.</u>	<u>120 pts.</u>
Total	720 pts.

The current course grade and progress is continuously displayed on the student desktop.

Grading Scale:

89.5% - 100% (645 - 720 pts)	= A
79.5% - 89.4% (573 - 644 pts)	= B
69.5% - 79.4% (501 - 572 pts)	= C
59.5% - 69.4% (429 - 500 pts)	= D
<59.4% (<429 pts)	= F

Modules and Assignments

- Module 1: A review of some key fundamental mathematic and algebraic concepts. This module takes students through some of the basic concepts needed to solve single variable equations and then moves through an overview of the first half of a high school algebra course. This material will be needed to solve some of the more complex topics in the course. Topics covered include: Numbers, Absolute value, Operations, Order of operations, Exponents, Radicals, Conversions, Linear equations, Inequalities, Word problems, the Quadratic equation, and Systems of Equations.
- Module 2: A continuation of the review of high school algebra topics. The concepts covered in this module will round out the basic knowledge needed to build the foundation for the remainder of this course. Topics covered include: Functions, Graphing, Linear Functions, Slope-Intercept, Graphing Linear Functions, Polynomials, Greatest Common Factor, Factoring, and Algebraic Fractions.
- Module 3: An introduction to exponential and logarithmic functions. This module will teach students how to solve equations with variables in the exponent by using logarithms and how to manipulate logarithms. The properties of logarithms are taught, and all concepts are related to practical applications through the use of word problems. Topics covered include: Exponential Functions, Natural Exponential Function, Logarithmic Functions, Properties of Logarithms, Laws of Logarithms, Solving Exponential and Logarithmic Functions, and Applications of Exponential and Logarithmic Functions.
- Module 4: An overview of conic sections. Students will learn to interpret the equations of conic sections for relevant details, derive the equations for conic sections, and graph conic sections. Finally, the theoretical knowledge gained will be applied to practical scenarios. The conic sections covered are: Parabolas, Ellipses, and Hyperbolas.

Module 5: An introduction to Probability. This module starts with the principles of counting and moves into permutations and combinations. Students will learn to calculate the number of possible outcomes given a set of parameters and then will apply the concepts to common situations. The module ends with an introduction to basic probability and the derivation of expected values. Topics covered include: Principles of Counting, Permutations and Combinations, Probability, and Expected Values.

Module 6: An overview of arithmetic and geometric sequences and series. Students will learn how to identify and determine significant values for both arithmetic and geometric sequences and series. The concepts are integrated into practical problems in the field of finance. Topics covered include: Sequences, Arithmetic Sequences, Recursion, Geometric Sequences, Partial Sums, Infinite Series, and Finance Word Problems.

Holidays:

During the following holidays, all administrative and instructional functions are suspended, including the grading of exams and issuance of transcripts.

New Year's Day

Easter

Memorial Day

Independence Day

Labor Day

Thanksgiving weekend

Christmas Break (one week before Christmas through New Year's Day)

The schedule of holidays for the current calendar year may be found under the Student Services menu at www.portagelearning.com

Additional Tools

A built-in **scientific calculator** for the course has been incorporated into the website and can be found in the tool bar above each module and exam page. If you choose to purchase a calculator, keep in mind that you do not need to purchase an expensive calculator as the features you will need are available on basic scientific calculators with a cost of less than \$20. Many mobile phones also include a scientific calculator and you may use a calculator during any exam.

Suggested Timed Course Schedule (to complete the course within a typical college semester)

All Portage courses are offered asynchronously with no required schedule to better fit the normal routine of adult students, but the schedule below is suggested to allow a student to complete the course within a typical college semester. Despite this suggestion, the students may feel free to complete the course at their desired pace and on a schedule determined by them.

<u>Time Period</u>	<u>Assignments</u>	<u>Subject Matter</u>
Days 1-16	Module 1, Exam 1	Review of algebra topics: Numbers, Absolute value, Operations, Order of operations, Exponents, Radicals, Conversions, Linear equations, Inequalities, Word problems, Quadratic equations, Systems of Equations
Days 17-32	Module 2, Exam 2	Functions, Graphing, Linear Functions, Slope-Intercept Graphing Linear Functions, Polynomials, Greatest Common Factor, Factoring, Algebraic Fractions
Days 33-48	Module 3, Exam 3	Exponential Functions, Natural Exponential Function Logarithmic Functions, Properties of Logarithms, Laws of Logarithms, Solving Exponential / Logarithmic Functions, Applications of Exponential / Logarithmic Functions
Days 49-64	Module 4, Exam 4	Parabolas, Ellipses, Hyperbolas
Days 65-80	Module 5, Exam 5	Principles of Counting, Permutations and Combinations Probability, Expected Values
Days 81-96	Module 6, Exam 6	Sequences, Arithmetic Sequences, Geometric Sequences Finance Word Problems
Days 97-108	Final Exam	Comprehensive - including all course material

Suggested External References:

If the student desires to consult a reference for additional information, the following textbooks are recommended as providing complete treatment of the course subject matter.

Robert Blitzer, **College Algebra**, Pearson Publishing

Ron Larson, **College Algebra**, Cengage Learning

Learning Support Services:

Each student should be sure to take advantage of and use the following learning support services which are provided to increase student academic performance:

Video lectures which supplement the text material of each course module

Messaging system which provides individual instructor/student interaction

Toll-free phone tutoring help line which is available daily at appointed times (see below)

Tech support which is available by submitting a help ticket

Accommodations for Students with Learning Disabilities:

Students with documented learning disabilities may receive accommodations in the form of an extended time limit on exams, when applicable. In order to receive the accommodations, the student should furnish documentation of the learning disability prior to registration, if possible. Upon receipt of the documentation of a learning disability, Portage staff will provide the student with registration instructions for a variation of the course containing exams with extended time limits. This accommodation does not alter the content of any assignments/exams, change what the exam is intended to measure or otherwise impact the outcomes of objectives of the course.

Student Help Line:

Portage students have access to our help-line phone service. The phone service is staffed by instructors who will answer questions regarding material in those courses. Please call 1-888-724-3590 and choose option #2 if you would like assistance with your course work. Due to high call volume, we cannot guarantee that your call can be answered immediately so you may be required to leave a voicemail. The help-line instructors will return the voicemails as soon as possible and within one business day. If the hours above do not fit your personal schedule, please leave a message on the help line voicemail requesting an appointment. In the voicemail, please leave several dates and times convenient for a return call. If a help line representative cannot call you at one of your preferred times, you will be contacted to set up a mutually suitable time. Appointment slots are limited and will be granted as instructor time becomes available and at the discretion of the help line instructor. No appointments will be scheduled for Sunday.

Help Line Hours

Mon - Fri: Noon - 9 PM ET

Sat: 9 AM - 11 AM ET

Sun: Closed

Code of Conduct: Students are expected to conduct themselves in a way that supports learning and teaching and promotes an atmosphere of civility and respect in their interactions with others. Verbal and written aggression, abuse, or misconduct is prohibited and may be grounds for immediate dismissal from the program.

Academic Integrity is a serious matter. In the educational context any dishonesty violates freedom and trust, which are essential for effective learning. Dishonesty limits a student's ability to reach his or her potential. Portage places a high value on honest independent work. In a distance learning situation, we depend on the student's desire to succeed in the program he or she is entering. It is in a student's own best interests not to cheat on an exam, as this would compromise the student's preparation for future work. It is required of each student to take exams without consulting course materials or study aids including another person, the lesson pages, printed materials, or the Internet. To this end, your instructor will be alert to any indications that a student may be violating this principle. It will be necessary to show all your work on exams. When the nature of the course does not require numerical or symbolic determination (perhaps instead just requires recitation of learned descriptions), our experienced staff is able to detect the unauthorized consultation of study aids when answering exam questions. A violation of the academic integrity policy may result in a score of zero on the exam and possible expulsion from the course, at the discretion of the instructor with consultation with an administrative-instructional committee.

Grievances: If for any reason a student has a complaint about the course work or the instructor, the student is advised to first consult the instructor, who will be willing to listen and consider your concern. However, if you don't feel you have received a satisfactory reply, you are encouraged to contact the Executive Director of Portage Learning for further consideration of your complaint. The formal grievances process must be initiated via written communication. If desired, please file a written grievance to academics@portagelearning.com to initiate the process.

Remediation:

At NursingABC we allow a "one-time" only opportunity to re-take an alternate version of **one** module exam on which a student has earned a grade lower than 70%. This option must be exercised before the final exam is started. If an exam is retaken, the original exam grade will be erased and the new exam grade will become a permanent part of the course grade. However, before scheduling and attempting this retest, the student must resolve the questions they have in regard to the material by reviewing both the old exam and the lesson module material. The student is also encouraged to contact the phone help line for assistance. Once ready to attempt the retest of the exam they must contact their instructor to request that the exam be reset for the retest. Remember, any module retest must be requested and completed before the final exam is opened.