

Prerequisites: High school algebra is recommended but not required

Instructors: Matt Dodd, MS

H. Elaine Frey, MA

Laurie Key, MS

Nick Lagios, MS, MBA

Melissa Tweed, MS

Beth Zamboni, Ph.D.

Contact Information: Faculty may be contacted through the Canvas messaging system

Additional Information: www.portagelearning.com*

Course Meeting Times: MATH 101 is offered continuously

Course Description: A review of the basic principles of algebra and their applications, including unit conversions, solving equations, solving systems of equations, evaluating functions, graphing, and word problems. This is followed by an introduction to intermediate and advanced subjects including polynomials, factoring, exponential and logarithmic functions, conic sections, probability, and arithmetic and geometric sequences.

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

*Please see the *Module Topics* section below for expanded course outcomes.

are delivered through the [PortageLearning.com](https://portagelearning.com) platform.

Each of these MATH 101 student learning outcomes is measured:

Directly by: (1) Module application problems (with instructor feedback)

(2) Module exams

(3) Cumulative final exam

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.

Course Progression: It is the policy for all Portage Learning courses that only one (module lecture/final) exam is to be completed within a 48-hour period. Research on the best practices in learning indicates that time is needed to process material for optimal learning. This means that once an exam has been completed, the next exam may not be opened or taken until 48 hours after the submission of the previous module exam. This allows for instructor feedback/class expectations as the student moves through the material. Instructors, like the College, are not available during the weekend; grading, therefore, is M-F and may take up to 72 hours during these days. Also, it is the policy of Portage Learning to support a minimum of 28 days to complete a course; this is not a negotiable time period. Please plan your time accordingly.

Note: Professors reserve the right to reset any exam taken in violation of these guidelines.

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. Please note the exam questions are based upon the readings. Video lectures which support each lesson module subject should be viewed as many times as is necessary to fully understand the material.

We do not support the use of outside resources to study, except for the ones listed in the syllabus under "Suggested External References". If you have questions about the material or would like further explanation of the concepts, please contact your instructor.

Module Review Questions: The practice problems within the modules are a part of your final grade, and the module work will be reviewed for completeness (not correctness) by the instructor. Be sure to answer all of the problems, being careful to answer the questions in your own words at all times since this is an important part of adequate preparation for the exams. For problems that require calculations, you must show your work by including the initial set up for the problem and your final answer. Problem sets submitted with only a final answer will not be considered complete. After you answer the practice problems, compare your answers to the solutions provided 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 Canvas

messaging system (see Inbox icon).

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. 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 or put their work into question, as this would compromise the student's preparation for future work. It is the student's responsibility to review the **Student Handbook** and all policies related to academic integrity. If clarification is necessary, the student should reach out to their instructor for further explanation **before** initiating module one.

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 potentially compatible with the course, but not all features are available for all tablet computers. The latest full version of Google Chrome, Firefox, Edge, or Safari browser is required for the optimal operation of the Canvas Learning Management System. In addition, this course will use the Respondus Lockdown Browser for exams; a strong internet connection is needed. You are also **required to use LockDown Browser with a webcam**, which will record you during an online, nonproctored exam. (The webcam feature is sometimes referred to as "Respondus Monitor.") **Your computer must have a functioning webcam and microphone. Additionally, students will need a photo ID that includes your picture and full name is required. Please note, Chromebooks and tablets (other than iPad) are not compatible on exams using the Lockdown Browser.** Instructions on downloading and installing this browser will be given at the start of the course. It is recommended to also have the latest version of Flash installed as a browser plugin as some sections of the course may require it. We highly recommend using a high-speed Internet connection to view the video lectures and labs. You may experience significant difficulties viewing the videos using a dial-up connection.

For more information on basic system and browser requirements, please reference the following:

- System requirements: <https://community.canvaslms.com/docs/DOC-10721-67952720328> -
- Browser requirements: <https://community.canvaslms.com/docs/DOC-10720>
- Respondus requirements: <https://web.respondus.com/he/lockdownbrowser/resources/>

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.

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.

[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. Students may feel free to complete the course on a schedule determined by them within the parameters outlined under "Course Progression."

Time Period Assignments Subject Matter

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

Grading Rubric:

Check for Understanding = 1 pt.

6 Module Problem Sets = 5 pts. each x 6 = 30 pts.

6 Module exams = 100 pts. each x 6 = 600 pts.

Final exam = 120 pts. 120 pts.

Total 751 pts.

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

Grading Scale:

96.5% - 100% = A+
92.5% - 96.4% = A
89.5% - 92.4% = A
86.5% - 89.4% = B+
82.5% - 86.4% = B
79.5% - 82.4% = B
76.5% - 79.4% = C+
72.5% - 76.4% = C
69.5% - 72.4% = C
66.5% - 69.4% = D+
62.5% - 66.4% = D
59.5% - 62.4% = D
0% - 59.4% = F

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

NOTE: We do not support the use of outside resources to study, except the ones listed above.

Learning Support Services:

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

Video lectures: Supports diverse learning styles in conjunction with the text material of each

module **Messaging system:** Provides individual instructor/student interaction

Tech support: Available by submitting a help ticket through the student dashboard

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. To receive the accommodations, the student should furnish documentation of the learning disability at the time of registration, if possible. Scan and e-mail the documentation to studentservices@portagelearning.com. Upon receipt of the learning disability documentation, Portage staff will provide the student with 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.

One-on-one Instruction:

Each student is assigned to his/her own instructor. Personalized questions are addressed via the student

dashboard messaging system.

Online learning presents an opportunity for flexibility; however, a discipline to maintain connection to the course is required; therefore, communication is essential to successful learning. **Check your messages daily.** Instructors are checking messages daily Monday-Friday to be sure to answer any questions that may arise from you. It is important that you do the same so you do not miss any pertinent information from us.

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

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

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.

This is a classroom; therefore, instructors have the academic freedom to set forth policy for their respective class. Instructors send a welcome e-mail detailing the policy of their class, which students are required to read prior to beginning the course.

Grievances: If a student has a complaint about the coursework or the instructor, the student is advised to first consult the instructor, who will be willing to listen and consider your concern. To file a formal grievance for consideration by the Academic Review Committee, the process must be initiated via written communication to academics@portagelearning.com.

Remediation: At Portage Learning 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 regarding the material by reviewing both the old exam and the lesson module material. 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.

Note: Exams on which a student has been penalized for a violation of the academic integrity policy may not be re-taken.

Syllabi are subject to change as part of ongoing educational review practices. Students are responsible for accessing and using the most recent version of the course syllabus.