Welcome to MATH 1314/MATD 0414 – Algebra Express

A co-requisite combination of MATH 1314 College Algebra and
MATD 0414 Developmental Algebra

Semester Syllabus

Delete these instructions after following them: Instructors must make the following customizations:

- Change all highlighted text and remove highlights. Text highlighted in yellow should be customized; text highlighted in green is instructions that should be followed and then deleted.
- It is impossible to arrange the vertical spacing correctly on the master syllabus, as each instructor will be adding and deleting items. Consider starting each of the Level 1 Headings (The Basics, Course Calendar, Getting Help, Grades, Course Content, and The Details) at the top of a new page.
- In order to make the document accessible to screen readers, the master syllabus uses styles for text. The 6 styles in use are Title, Subtitle, Heading 1, Heading 2, Normal, and hyperlink. If you would like to customize these styles with different fonts or formatting, please do so using Styles. Right click on the style you want to change and choose Modify.
- Please do not add tables without following accessibility procedures. Previous syllabi that contained critical information on the first page without a table do not meet accessibility requirements.

THE BASICS

About Your Instructors

Name: Insert info here

The best way to reach me is: Insert info here

Phone number: Insert info here

Email: Insert info here

Office location (and/or link if appropriate): Insert info here

Office hours: Insert info here

To schedule a conference outside of office hours: Insert info here

Name: Insert info here

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To schedule a conference outside of office hours: Insert info here

About Your Course

Instructional Methodology: **Delete these instructions after following them**: Choose the correct option and **delete the other options**

Classroom Section: This course is taught in the classroom primarily as a lecture/discussion course.

DLS—Synchronous Virtual Class Meetings Required: Instruction is fully online with required online meetings during the specified days and times listed.

ONL—Online: Instruction and testing are fully online without required class times.

HYC—Hybrid Classroom: Instruction is mostly on-campus with remaining instruction online.

Synonym: Insert info here **Section:** Insert info here

Meeting location: Insert info here **Meeting times:** Insert info here

Prerequisites: NCBM 0270 with a grade of C or higher. Or appropriate score on math TSI Assessment test. Corequisite(s): MATH 1314.

Paired Course Policy: This is a paired course. Students who withdraw from MATD 0414 will automatically be withdrawn from MATH 1314.

Required Materials

This is a First Day™ class. The cost of required course materials, including an online version of the textbook and software access, has been added to your tuition and fees bill.

Textbooks:

College Algebra with Modeling & Visualization, 6th Edition by Rockswold. Pearson Publishing (MyLab software) ISBN: 9780134763828

Intermediate Algebra, OpenStax publication by Lynn Marecek at Santa Ana College. Available free for download as pdf. See your instructor's Blackboard course for a link.

MyLab Math is an optional interactive online course that accompanies the *College Algebra with Modeling & Visualization* textbook. There is no MyLab Math course to accompany the Intermediate Algebra textbook. Access to MyLab Math is included in the cost of your First Day Access.

Calculator: Students need either a scientific or business calculator. (Has log or ln key.) If a student cannot purchase one, calculators are available from the library. Graphing calculators are not required, but a graphing calculator will help you in some sections. Graphing calculators are also available in the library. Most ACC faculty are familiar with the TI family of graphing calculators. Hence, TI calculators are highly recommended for student use. Other calculator brands can also be used. Your instructor will determine the extent of calculator use in your class section.

Other Technology: Delete these instructions after following them: Delete webcam info if it does not apply; add any other needed technology. Access to a webcam and microphone are required for this course. Eligible students can check out required technology at https://www.austincc.edu/students/student-technology-services.

Course Calendar

Delete these instructions after following them: This is the recommended 16-week calendar from the course committee. See the document "Suggested Course Calendars" for other options and customize this chart as appropriate.

Note: Schedule changes may occur during the semester. Any changes will be announced in class and posted as a Blackboard Announcement.

Week	Material
1	Introduction Marecek Chapter 1: Foundations Marecek 2.1 Linear Equations and Expressions Marecek 2.2 Problem Solving
2	Marecek 2.3 Formulas Marecek 2.5 & 2.6 Linear Inequalities & Interval Notation Review Test 1
3	Marecek 3.1 Graph Linear Equations in Two Variables Marecek 3.2 Slope of a Line Marecek 3.3 Find the Equation of a Line
4	Marecek 3.5 Relations and Functions Marecek 3.6 Graphs of Functions Rockswold 1.4 Types of Functions Review Test 2
5	Rockswold 2.4 More Modeling with Functions Marecek 4.1 Solve Systems of Linear Equations in 2 Variables Marecek 4.2 Solve Applications with Systems of Equations
6	Rockswold 6.4A Intro to Systems in Three Variables Rockswold 6.4B More Systems in Three Variables Rockswold 6.5 Applications of Matrices Review Test 3
7	Marecek 5.2 Properties of Exponents & Scientific Notation Marecek 5.1 & 5.3 Add, Subtract, and Multiply Polynomials Marecek 6.1 GCF and Factor by Grouping
8	Marecek 6.2 Factor Trinomials Marecek 6.3 & 6.4 Factoring Strategy & Diff of Squares Marecek 6.5 Polynomial Equations Review Test 4
9	Rockswold 3.5 Transformations of Graphs Rockswold 3.1 Quadratic Functions
10	Marecek Ch 8 selected topics, Part A: Square Roots, Complex Numbers Marecek Ch 8 selected topics, Part B: More with Radicals Marecek 9.1 Square Root Property Review Test 5

11	Marecek 9.3 Quadratic Formula Rockswold 3.2 Quadratic Equations Rockswold 3.4 Quadratic Inequalities
12	Rockswold 4.1 Nonlinear Functions Rockswold 4.2 Polynomials Rockswold 4.4 Real Zeros of Polynomials Review Test 6
13	Marecek 7.1 Multiply and Divide Rational Expressions Marecek 7.2 Add and Subtract Rational Expressions Rockswold 4.6 Rational Functions
14	Rockswold 4.7 Rational Equations Rockswold 5.1 Combining Functions Rockswold 5.2 Inverse Functions Review Test 7
15	Rockswold 5.3 Exponential Functions Rockswold 5.4 Logarithmic Functions Rockswold 5.5 Properties of Logarithms
16	Rockswold 5.6 Exponential and Logarithmic Equations Review Final Exam Part 1 Final Exam Part 2

Important Dates

Last day to withdraw: Insert date here
Holidays: Insert ACC holidays for current semester

(Please note these are the **ONLY** holidays this semester.)

Making Time to Learn

We learn math by thinking about and working on mathematical problems, which takes time. Practice is crucial in a math course. To ensure that you have adequate time, set aside 12-15 hours per week outside of class time to practice and study for this course. Ask for help immediately when something isn't clear.

GRADES

Delete these instructions after following them: Grading criteria must be clearly explained in the syllabus. The criteria should specify the number of exams and other graded material (homework, assignments, projects, etc.). **Instructors must include where students can access their grades.** Instructors should discuss the format and administration of exams. Guidelines for other graded materials, such as homework or projects, should also be included in the syllabus. An example is given below; you should modify it to fit your course.

Grade Components

There will be 7 exams and a comprehensive final during the term, each of which will count equally towards your grade. Points will be assigned as follows for your grade:

Tests: 85%

Written Homework/Quizzes: 15%

Grading Scale

A: 90 - 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: < 60

Where can I find my grades?

Grades will be posted in Blackboard.

MATD 0414 and MATH 1314 Grades

Students receive the same grade for both MATD 0414 and MATH 1314, with the following exceptions:

- If a student's grade average on tests 1-5 is higher than the overall grade average, the student may be assigned the letter grade based on tests 1-5 for MATD 0414 only. This grade calculation is independent of homework and quiz scores.
- A student who does not have a passing average on tests 1-5 and has chosen not to attempt to successfully complete MATH 1314 may make arrangements with the instructors to work on Independent Study for developmental content. The student may then take an alternate MATD 0414 final exam covering only the content supporting tests 1-5 instead of the MATH 1314 final exam. A grade for MATD 0414 may be given at the instructor's discretion solely on the basis of this final exam.

A grade of C or higher in MATD 0414 is sufficient for a student to be declared TSI complete (college ready) in math and satisfies the prerequisite for College Algebra. That means that a student who earns a C in MATD 0414 but does not successfully complete College Algebra may register for College Algebra the next semester without a co-requisite.

What will we do in this class?

Tests: Insert info here

Written Homework Assignments: **Delete these instructions after following them**: Instructors may use the sample below or insert their own.)

Written homework assignments, in the form of worksheets, correspond to each topic. Practice problems mostly reference questions in the two textbooks. Here is the process to follow with written homework:

1. Complete the practice problems on a separate sheet of paper, and check your answers. It is important to get this feedback before going on to the graded problems, for which there are no answers provided.
2. Complete the graded problems directly on the worksheet. Try to come up with a way of checking your answers without having solutions provided.

It is recommended that you complete all of the practice problems and check your answers before starting on the graded problems. The assignments are set up in such a way that the practice problems increase in difficulty as you go, and the graded problems are mostly at the highest difficulty level.

Written homework is graded by completion and correctness. In order to get a perfect score, you must show all of your work for both practice and graded problems, following an appropriate process, and get a correct answer. If you are uncertain about your answers, it is worth seeking help before turning in the assignment.

Group work: Insert info here

What happens if I miss something?

Dropped Grade Policy: Insert info here

Late Work Policy: Insert info here

Missed Exam Policy: Insert info here

Attendance Policy: Daily attendance is mandatory. This corequisite option covers material from three courses, and involves group activities on a daily basis. Your partners depend on you for group work, and your own success in the course depends on your full commitment.

There is no such thing as an "excused absence". The end result of missing a class is the same regardless of the reason. You miss instruction. Your partners are let down. You miss an opportunity to turn in homework. The goal is to minimize these disruptions, and to take personal responsibility to make up for any missed class on your own time.

Expectations: **Delete these instructions after following them**: Instructors may remove this or insert their own.)

1. Attend all sessions
2. Arrive on time to the virtual session and stay for the duration of the session
3. Participate during that time and spend time outside of class working on homework
4. Make use of the raise your hand tool when in a large Blackboard Collaborate session so we are not all speaking at once.
5. Keep chat (whether via text or microphone) appropriate and course focused.

Class Participation Policy: Insert info here

Course Content

Course Description

Credit Hours: 7, **Contact Hours:**7

MATH 1314 College Algebra (3-3-0). A course designed for students who need College Algebra but do not need to take Precalculus (MATH 2412) or Calculus (MATH 2413). In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. This course does not meet the prerequisite for Precalculus (MATH 2412).

MATD 0414 – Developmental Algebra (4-4-0). A course designed to develop the skills and understanding contained in secondary school algebra. Topics include review of operations and properties of real numbers, negative exponents, functions, graphing linear equations, solving linear and quadratic equations and systems of linear equations, solving linear inequalities, operations on polynomials and factoring, and introduction to rational, radical, and exponential functions.

Course Rationale

MATH 1314: This course is designed to teach students the functional approach to mathematical relationships that they will need for a business calculus sequence. Other courses, such as MATH 1332, or MATH 1342 are more appropriate to meet a general mathematics requirement. **Check with your degree plan as to what math course your college requires.**

MATH 1314 Course Objectives

Functions:

- Use and interpret function notation.
- Find the domain of polynomial, rational, radical, exponential, and logarithmic functions.
- Find a symbolic representation of the sum, difference, product, quotient, and composition of two functions.
- Evaluate the sum, difference, product, quotient, and composition of two functions at a given value of the respective domain for functions represented symbolically, graphically, and numerically.
- Find the inverse of a function represented symbolically, graphically, or numerically.
- Interpret the graphs of functions.

Graphing functions:

- Sketch the graphs of the following functions: Lines, x^2, a^x, and $\log_a x$
- Identify and sketch transformations of the graphs of the following functions: x^2, x^3, $x^{1/2}$, $1/x$, $1/x^2$, $|x|$.
- Describe the end behavior of polynomial functions.
- Approximate the zeros of a function from its graph.
- Solve an inequality involving a function from its graph.
- Graph a piece-wise defined function.

Symbolic Adeptness:

- Solve polynomial, rational, exponential, and logarithmic equations symbolically.
- Use the Fundamental Theorem of Algebra
- Find the vertex of a parabola written in standard form by using the formula $h = -b/2a$.
- Convert an exponential equation to logarithmic form, and a logarithmic equation to exponential form.
- Evaluate exponential and logarithmic functions using the change of base formula and a calculator.
- Use the properties of logarithms to expand a logarithmic expression, and to write an expanded logarithmic expression as a single logarithm.
- Solve a system of linear equations using Gaussian elimination.
- Evaluate the sum, difference and scalar multiplication of matrices.

Applications

- Recognize and use applications of linear functions.
- Recognize and use applications of quadratic functions, including falling object problems and extrema problems.
- Recognize and use applications of rational functions.
- Recognize and use applications of exponential and logarithmic functions, including exponential growth and decay, doubling time, and half-life problems.
- Recognize and use applications of systems of linear equations.

MATH 1314 Student Learning Outcomes

Upon successful completion of the course, a student should be able to:

1. Demonstrate understanding and knowledge of properties of functions, which include domain and range, operations, compositions, and inverses.
2. Recognize and apply polynomial, rational, exponential, and logarithmic functions and solve related equations.
3. Apply graphical, symbolic and numeric techniques.
4. Evaluate all roots of higher degree polynomial and rational functions.
5. Recognize, solve and apply systems of linear equations using matrices.

MATD 0414 Course Objectives/Student Learning Outcomes

Upon successful completion of this course a student will be able to:

1. Perform operations involving integers, fractions, decimals, percents, signed exponents, scientific notation, ratios and proportions.
2. Evaluate and perform basic operations on functions, find the domain and range of functions, and solve equations involving functions.
3. Solve problems involving geometric figures.
4. Identify slope and intercepts from linear equations and graphs of lines. Find linear equations from given points and graphs of lines.
5. Graph linear equations and inequalities, systems of linear equations, and quadratic functions.
6. Simplify, factor, and perform basic operations on algebraic expressions, including polynomials, rational and radical expressions, and complex fractions.
7. Solve linear equations, linear inequalities, and quadratic equations. Solve introductory absolute value, rational, and radical equations.
8. Solve basic application problems using linear and quadratic models, direct and inverse variation, and 2x2 systems of linear equations.
9. Use mathematical language, symbols, and notation to communicate mathematical concepts, demonstrate reasoning, and solve problems.

General Education Competencies

1. Critical Thinking: gathering, analyzing, synthesizing, evaluating and applying information is covered in every SLO.
2. Quantitative and Empirical Reasoning: applying mathematical, logical, and scientific principles and methods is covered in every SLO.

3. Technology Skills: using appropriate technology to retrieve, manage, analyze, and present information is covered in SLOs # 1, 2, 3, 4, and 5.
4. Written, Oral and Visual Communication: communicating effectively adapting to purpose, structure, audience and medium is covered in every SLO.

The Details

[Delete these instructions after following them: Remove the following two paragraphs if your class is not online]

Distance Education Information: This class is fully online. Successful online students actively participate in class on a regular basis just like in an on-campus class and avoid putting off classwork until the last minute. This includes reading assignments, taking quizzes and tests, and any other activities assigned by your professor. You will need to stay motivated and routinely log in to your classes in order to keep on top of your assignments.

Students will use the Blackboard learning management system for assignment instructions, submitting assignments, and collaboration. Students are encouraged to read ACC Distance Education General Information available at https://online.austincc.edu/faq/.

First Day Access: To enhance your learning experience and provide affordable access to the right course material, this course is part of an inclusive access model called First Day™. You can easily access the required materials for this course through Blackboard, at a discounted price, and benefit from single sign-on access. Austin Community College includes the discounted price as a course fee in your registration fees for this course.

It is NOT recommended that you Opt Out, as these materials are required to complete the course. You can choose to Opt Out on the first day of class, but you will be responsible for purchasing your course materials at the full retail price and access to your materials may be suspended. See your course in Blackboard for details.

Importance of Completing Developmental Course Requirements: The first steps to achieving any college academic goal are completing developmental course requirements and TSI requirements. The first priority for students who are required to take developmental courses must be the developmental courses. TSI rules state that students are allowed to take college credit courses, if they are fulfilling their developmental requirements. Because successful completion of developmental courses is so important, ACC will intervene with any student who is not successfully completing developmental requirements. This intervention can mean a hold on records, requiring developmental lab classes, working with the Instructional Associate, and monitoring during the semester.

Withdrawal Policy: It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records.

Students who enroll for the third or subsequent time in a course taken since Fall 2002 may be charged a higher tuition rate for that course. State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

Reinstatement Policy: Students who withdrew or were withdrawn will not be reinstated unless they have completed all coursework, projects, and exams necessary to place them at the same level of course completion as the rest of the class. Reinstatement is up to the instructor's approval.

Incomplete Grade Policy: Incomplete grades (I) will be given only in very rare circumstances. Generally, to receive a grade of "I", a student must be up to date on coursework and have a passing grade, and after the last date to withdraw, have a legitimate reason that prevents course completion. An incomplete grade cannot be carried beyond the established date in the following semester. The completion date is determined by the instructor but may not be later than the final deadline for withdrawal in the subsequent semester.

Communication with Your Instructor: All e-mail communication to students will be sent solely to the student's ACCmail account or math software if applicable, with the expectation that such communications will be read in a timely fashion. Likewise, students should use their ACCmail account or math software when communicating with instructors. Instructors will respond to student emails within 3 business days, if no response has been received by the student at the end of that time, then the student should send a reminder to the instructor.

Name Change Information: If you want to change how your name appears online at ACC, go to https://www.austincc.edu/admissions/update-student-information/chosen-name.

General College Policies: Policies that apply to all courses at ACC can be found here: https://www.austincc.edu/offices/academic-outcomes-assessment/master-syllabi/college-policies.