

## **MAT 109**

### **College Algebra With Modeling**

3 credit hours/ 3 contact hours

**Catalog Description** This course is an approach to algebra that incorporates mathematical modeling of real data and business applications. Emphasis is on linear, quadratic, piece-wise defined, rational, polynomial, exponential and logarithmic functions, and includes inequalities and matrices. Students may not receive credit for both MAT 109 and MAT 110.

**Prerequisite** MAT 102 (C or higher), MAT 153 (C or higher) or appropriate placement score

### **Textbook and Required Materials**

*College Algebra With Modeling and Visualization*, Rockswold, 4<sup>th</sup> edition (Addison Wesley, 2010)

TI-83 (or TI-84 or TI-85 or TI-86) Graphics Calculator (Texas Instruments)

The TI-89 and TI-92 calculators are not allowed in this course.

### **Core Curriculum Competencies**

All courses approved for the general education core curriculum develop a student's critical thinking and/or communication skills.

This course develops critical thinking skills through instruction that emphasizes the understanding of mathematical concepts and the ability to apply these concepts to solving a problem. This will be demonstrated by assessments at the end of each unit and on the common final exam. The student will demonstrate the following critical thinking objectives:

- Solve polynomial, rational, exponential, logarithmic, and radical equations using mathematical principles in a logical process.
- Solve systems of equations using various mathematical methods including elimination, substitution, graphing, and matrices in a logical process.
- Apply mathematical principles in a logical process to solve real world problems involving polynomial, rational, exponential, logarithmic, and radical functions as well as systems of equations.
- Solve rational and polynomial inequalities and systems of inequalities using algebraic and graphical methods in a logical process.

This course develops communication skills through instruction that emphasizes the presentation of mathematical ideas in appropriate, clear, and precise mathematical language. The student will demonstrate the following communication objectives:

- Graph polynomial, rational, exponential, logarithmic, and radical functions, interpret the graphs, and explain their properties using appropriate, clear, and precise mathematical symbols and terminology.
- Interpret and explain solutions of polynomial, rational, exponential, logarithmic, and radical equations and real world problems as well as systems of equations using appropriate, clear, and precise mathematical symbols and terminology.

**Grading System and Policy** The College-wide grading scale is

91-100 = A, 81-90 = B, 71-80 = C, 65-70 = D, below 65 = F

There will be a comprehensive departmental final exam, which everyone must take (no exemptions), and which counts 25% of the final grade. The remaining 75% will be specified by your instructor's syllabus addendum. All or part of your evaluation in this course may be without your calculator.

**Attendance/ Withdrawal** Before attending classes, you must meet all prerequisites and officially register for all courses. Prompt and regular attendance is your responsibility. You are responsible for all material covered and all assignments made in class. Any time you are absent from a class, laboratory or other scheduled events, it is your responsibility to make satisfactory arrangements for any make-up work permitted by the instructor.

An absence is defined as nonattendance for any reason, including illness, emergency or official leave. If you arrive late to class, you may not be allowed into the classroom and may be considered absent for that period. If you leave before the instructor dismisses class, you may also be considered absent. All class sessions are important. Any time you miss a class you increase your risk of making a failing grade.

If you quit coming or participating in the course and do not officially withdraw by the withdrawal date for each semester, you will receive a grade of *F*. Your instructor cannot assign a grade of *W*. If you receive financial aid or veterans' aid, your aid may be revised as a result of any changes in your course schedule.

**Instructor availability** Your instructor is available to you outside of class for academic assistance. Full-time faculty members maintain and post regularly scheduled office hours. Part-time faculty members are accessible in a variety of ways, which may include conferences before and after class or by appointment, telephone conferences, and E-mail. The phone number for reaching your instructor is provided on your syllabus addendum.

**See your syllabus addendum** This is a departmental syllabus for all sections of the course. As such, it tries to address issues common to all sections. There will be issues (grading details, office hours, and the like) that are specific to your section, and these details will be covered in an addendum issued by your instructor.

#### **Activated Electronic Communication Devices**

These devices, such as cell phones and pagers are NOT permitted in TTC classrooms. On-call emergency personnel are required to report to their instructors and cannot communicate by electronic means during a testing situation.

**For Students Enrolled in Online or Other Distance-Learning Sections** To confirm that you are actively involved in this course you need to contact the instructor at least once per week. Forms of contact can include (but are not limited to) posting/receiving emails, participating in online class discussions or chat rooms, and completing and submitting course assignments. Please see the instructor's addendum for any additional instructions.

**ADA Statement** The College will make reasonable accommodations for persons with documented disabilities. Students with disabilities should notify Services for Students with Disabilities (located in the Student Success Center) and their instructors of any special needs. Instructors should be notified on the first day of classes.

**Textbook Portions Covered**

Unit 1	Introduction to Functions and Graphs,	1.2, 1.3, 1.4, 1.5, 2.1
Unit 2	Quadratic Functions and Equations	3.1-3.5
Unit 3	Polynomial and Rational Functions and Equations	4.1 – 4.8
Unit 4	Exponential and Logarithmic Functions	5.1- 5.7
Unit 5	Systems of Equations and Inequalities	6.1 – 6.4

**Supplementary Help** Extra help is available from The Learning Center (920 bldg, rm 211). The Learning Center and the library also has a set of videotapes that the publisher of the book makes available.

**College Information** TTC uses Campus Cruiser e-mail as the standard communication system to send information to students and uses TTC Express to post final course grades. To access your accounts go to [www.tridenttech.edu](http://www.tridenttech.edu).

**Department Head** Elizabeth White at 574-6538

**Division Admin. Asst.** 574-6015 (emergencies only)