Course Title: Mathematical Modeling and Problem Solving  
Instructor: “[Instructor Name]”  
Credit Hours: 4  
Office: “[Office Location]”  
Course Number: MATH 1200-00x  
Hours: “[Office Hours]”  
Location and Time: “[Location and Time]”  
email: “[e-mail address]”  

CATALOG DESCRIPTION  
Mathematical modeling of data using linear, quadratic, rational, and radical functions in their numerical, symbolic, graphic, and verbal forms. Problem solving methods and strategies will be emphasized.

PREREQUISITES  
Satisfactory ACT or SAT Math score or satisfactory placement test score  
To be successful in this class, you should be comfortable adding, subtracting, multiplying and dividing signed numbers and fractions, and familiar with the use of variables.

REQUIRED MATERIALS  
- The textbook package for Algebra for College Students 7th edition, Blitzer, Pearson/Prentice Hall. The textbook package, which includes your Access Code, may be purchased at The University of Toledo’s bookstore. Once you have registered for Math 1200, on the first day of class you will have temporary access to the online course content. To obtain permanent access, you will need the Access Code.  
- Scientific calculator (non-graphing, non-programmable). Graphing calculators and cell phones are not allowed to be used on tests or the final exam.  
- 3-Ring binder/notebook/folder for the organized taking/keeping class notes, and written assignments.

THIS IS NOT A DISTANCE LEARNING COURSE. Class meeting times are listed above.

Along with this syllabus, a course calendar is posted within your course at Course Tools>Document Sharing>Syllabus and Schedule. This calendar includes daily course content, due dates for quizzes, and test dates.

All homework, quizzes, tests, and the final exam will be administered online.

Homework will be assigned daily, written activities and quizzes weekly. There will be 4 tests, plus a comprehensive final exam.

Tests and the final exam can only be taken in the classroom under the instructor’s supervision or under special circumstances in a Testing Center, scheduled by the instructor. Only non-graphing, non-programmable calculators may be used on all tests and the final exam. Cell phones may not be used on all tests and the final exam. Use of a cell phone in any capacity during a test or the final may result in a grade of 0% for that test or the final. Notes may not be used on tests and the final exam. Tests need to be made up within a week of the announced test day, or a grade of 0% may be posted for the missing test. At the end of the semester, your Final Exam grade may be substituted for your lowest test score. According to The University of Toledo’s policy, all final exams need to be taken during Final Exam Week.

You have 2 attempts for each quiz, with the higher score automatically recorded by the computer as part of your overall grade. If your first attempt on a quiz is not submitted by the due date/time, your grade for your first attempt will be 0%. You will have until the beginning of your Final Exam to complete your second attempt, or your first attempt grade will stand as your score for that quiz. You do not need to do a second attempt if you are satisfied with your first attempt score.
All homework problems may be worked as often as needed to master the material, and each exercise may be reworked to improve your score. Interactive solutions for the homework problems and different forms of tutorials are available online. You may ask for help on homework assignments and quizzes. Practice tests will be available a week prior to each test and will be counted as a homework assignment. Homework assignments and Practice Tests not attempted by the beginning of tests will receive a grade of 0%. You may work to improve these scores after the test.

Weekly Written Assignments are paper/pencil activities. These may be assigned as an individual or group in-class activity, or as an out-of-class assignment. Due dates/times will be established by your instructor. Makeups for these assignments may be accessed through the course website. Penalties may be assigned for late submissions.

Notebooks should be well organized and contain classroom notes, graded written assignments, and clearly written work associated with homework and quizzes. You may want to include printed copies of the Lecture Notes that are posted in the course website. Notebooks will be checked during your final exam.

LIST OF TOPICS
The material covered in the course corresponds to material in Chapters 1-9 of Algebra for College Students, 7th edition, Blitzer.
In general, students will be engaged in the various topics listed below through lectures, interactive computer activities, and group and individual written activities.
An emphasis will be placed on problem solving throughout the course.

- Problem solving strategies and techniques
- Introduction to functions
- Linear functions
- Quadratic functions
- Inverses of functions
- Square root functions
- Rational functions
- Exponential and logarithmic functions

GRADING POLICY
The categories used for evaluation in this course and the percent weights associated with them are:

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Written activities</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Tests</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
</tbody>
</table>

GRADING SCALE
The categories used for evaluation in this course and the percent weights associated with them are:

<table>
<thead>
<tr>
<th>Overall %</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100%</td>
<td>A</td>
</tr>
<tr>
<td>85-92%</td>
<td>B</td>
</tr>
<tr>
<td>77-84%</td>
<td>C</td>
</tr>
<tr>
<td>70-76%</td>
<td>D</td>
</tr>
<tr>
<td>0-69%</td>
<td>F</td>
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</table>
LEARNING RESOURCES
- Your instructor is available for extra help during office hours.
- Free math tutoring on a walk-in basis is available in the Math Learning and Resources Center located in Rm B0200 in the lower level of Carlson Library (phone ext 2176). The Center operates on a walk-in basis. MLRC hours can be found at http://www.math.utoledo.edu/mlrc/MLRC.pdf

ATTENDANCE
This course meets MTWR for 75 minutes each day. Attendance will be taken every class day. You are considered present if you are in the classroom, and participating in the class discussion/group work or working on course assignments. Missing more than 10 minutes of a 75-minute class period may be considered an absence by your instructor. Missing 2 or more consecutive classes, or missing every other day, may lead to deactivation of your MyLabsPlus account. When your account is deactivated, you will be unable to access your coursework until you have a conference with your instructor, and/or return to class. No attendance credit is given for sleeping in class.

At the end of the semester Extra Credit may be awarded to your Overall Final Average for good attendance:

+2% if 4 or less days are missed  
+1% if 5-8 days are missed.

Reasons for absences have no bearing on earning the attendance extra credit.

VIDEO LECTURES
Throughout the course, video lectures may periodically be used as a substitute for various in-class lectures. When these lectures are made available, you are responsible for watching them in an appropriate time frame.

CLASSROOM RULES AND ETIQUETTE
- The classroom is to be used only for work on Math1200.
- No text messaging, facebooking, googling, emailing, game playing, or working on assignments for other classes.
- No food in the classroom computer lab, this includes before and after class.
- Drinks need to be in capped bottles and off the table tops.
- All electronic devices and cell phones need to be turned off and out of sight during class and tests.
- Cell phones may not be used as calculators, and need to be turned off before entering the room.
- The use of cell phones needs to be restricted to outside the classroom, including between classes.
- Be considerate of your classmates and instructor in asking and answering questions, entering, leaving or moving around the classroom.
- Students arriving early for class should wait in the hallway until the previous class has left the room.
- If you fail to comply with any of these rules, you may be asked to leave the classroom.

SOME ADVICE FOR SUCCEEDING IN THIS CLASS
- Attend class regularly and complete your assignments by the due dates.
- Schedule sufficient time to devote to this course outside of class.
- Don't hesitate to ask questions, either in class or during your instructor’s office hours. If you can't make it during those office hours, make an appointment or make contact by email.
- Get help at the first sign of confusion. Don’t wait.
- Study with fellow students. Take turns explaining the material to each other. Teaching someone else is the best way of learning.
- Bring a good non-graphing scientific calculator to class every day.
ACADEMIC DISHONESTY POLICY
Any act of academic dishonesty as defined by the University of Toledo policy on academic dishonesty (found at http://www.utoledo.edu/dl/students/dishonesty.html) will result in an F in the course or an F on the item in question, subject to the determination of the instructor.

MISSED CLASS POLICY
If circumstances occur in accordance with “The University of Toledo Missed Class Policy” (found at http://www.utoledo.edu/facsenate/missed_class_policy.html) result in a student missing a quiz, test, exam or other graded item, the student must contact the instructor in advance by phone, e-mail or in person, provide official documentation to back up his or her absence, and arrange to make up the missed item as soon as possible.

GRADES AND GRADING POLICY
Reference: http://www.utoledo.edu/policies/academic/undergraduate

NON-DISCRIMINATION POLICY
The University of Toledo is committed to a policy of equal opportunity in education, affirms the values and goals of diversity.

STUDENT DISABILITY SERVICES
The University will make reasonable academic accommodations for students with documented disabilities. Students should contact the Student Disability Services (Rocket Hall 1820; 419.530.4981; studentdisabilitysvs@utoledo.edu) as soon as possible for more information and/or to initiate the process for accessing academic accommodations. For the full policy see: http://www.utoledo.edu/offices/student-disability-services/sam/index.html

STUDENT PRIVACY
Federal law and university policy prohibits instructors from discussing a student's grades or class performance with anyone outside of university faculty/staff without the student's written and signed consent. This includes parents and spouses. For details, see the “Confidentiality of student records (FERPA)” section of the University Policy Page at http://www.utoledo.edu/policies/academic/undergraduate/index.html

IMPORTANT DATES
• FINAL EXAM: ____________________
• The last day to ADD/DROP classes is: ______________
• The last day to WITHDRAW from Fall Semester is: ________________

DROP/WITHDRAWAL
Instructors cannot withdraw students from class. Any student who has not withdrawn from class by the withdrawal deadline will receive a letter grade for this 4 credit hour course. The last day to drop or add this course is the end of the second week of classes. The last day to withdraw from this class with a grade of “W” is the Friday of the tenth week of classes.

Podcast and Media Use Policy: Media produced by the course instructor are solely for class use by students currently registered for the course, and under no circumstances can they be posted, linked to, or made available for distribution or copying to any persons, institutions, or servers (for example, no portion of them may be downloaded and posted on YouTube or sent to friends). This includes media that appears on the course site and in VoiceThread. As the author of these teaching materials the instructor or university holds the copyright (though not to the commercial artworks contained within them), and the only authorized use by students is for
the purposes of the course. Violating this policy constitutes a serious infraction of UT’s computer use policy and may result in consequences up to and including expulsion from the University and legal action (both criminal and civil) from the various rights holders whose copyrights you may have infringed.

**Topics to be covered: Learning Objectives covered by that topic follow in italics**

<table>
<thead>
<tr>
<th>Chapter, Sections</th>
<th>Topics</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1, Sections 1-6</td>
<td>Algebraic Expressions, The real number system, Operations with real numbers, Solving linear equations, problem solving, integral exponents. <strong>Review of basic skills and Real Number Operations</strong></td>
<td>8 hours</td>
</tr>
<tr>
<td>Chapter 2, Sections 1-5</td>
<td>Functions, Graphs of Functions, Algebra of Functions, linear Functions and Slope, The point slope form of a line. <strong>Understand and work with functions including the domain and range.</strong></td>
<td>6 hours</td>
</tr>
<tr>
<td>Chapter 3, Sections 1-3</td>
<td>Systems of linear equations, Problem solving and applications of systems of equations, Systems of linear equations in 3 variables. <strong>Solve simultaneous systems of equations by two methods, and to apply.</strong></td>
<td>4 hours</td>
</tr>
<tr>
<td>Chapter 4, Sections 1, 4</td>
<td>Solving linear inequalities, linear inequalities in 2 variables. <strong>Understand basic inequalities and generate graphical representations of their solutions</strong></td>
<td>3 hours</td>
</tr>
<tr>
<td>Chapter 5, Sections 3-7</td>
<td>Factoring, greatest common factor, trinomials, special forms, polynomial equations. <strong>Factor numerous forms of polynomials, and apply the concept to solve equations.</strong></td>
<td>5 hours</td>
</tr>
<tr>
<td>Chapter 8, Sections 1-3</td>
<td>Square root property, completing the square, quadratic formula, graphs of quadratics. <strong>Identify and solve quadratics equations.</strong></td>
<td>7 hours</td>
</tr>
<tr>
<td>Chapter 9, Sections 1-5</td>
<td>Exponential functions, Composition of functions, inverse functions, logarithmic functions, properties of logarithms, exponential and logarithmic equations. <strong>Identify different types of functions, find inverse functions, Solve expo and log equations.</strong></td>
<td>5 hours</td>
</tr>
<tr>
<td>Chapter 7, Sections 1, 6</td>
<td>Radical expressions, radical equations. <strong>Identify and simplify radical expressions and solve radical equations.</strong></td>
<td>3 hours</td>
</tr>
<tr>
<td>Chapter 6, Sections 1, 2, 6, 7</td>
<td>Rational Expressions, Adding and Subtracting Radical Expressions, Rational Equations, and Applications. <strong>Understand and work with rational expressions.</strong></td>
<td>5 hours</td>
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