COLLEGE ALGEBRA

The University of Toledo
Mathematics & Statistics Department, College of Natural Sciences and Mathematics
MATH1320-0XX, CRN XXXXX

Instructor:	(Insert Name]	Class Location:	(Insert Building/Room)
Email:	(Insert E-mail Address)	Class Day/Time:	(Insert Days/Time)
Office Hours:	(Insert Days/Time)	Credit Hours:	3
Office Location:	(Insert Building/Office Number)		
Office Phone:	(Insert Phone Number)		
Term:	(Insert Semester and Year)		

COURSE DESCRIPTION

This course covers a review of number system, elementary theory of equations and inequalities, functions and relations, exponentials and logarithms, system of equations and topics in analytic geometry.

STUDENT LEARNING OUTCOMES

The objective of this course is to develop the students' mathematical skills, with emphasis on problems relating to algebra and polynomials. A more detailed list of learning objectives is given below. At least 70% of the course time will be devoted to these essential outcomes. These objectives are listed again in the chronological list of topics at the end of this syllabus.

- *Representation*: Graphical, algebraic, numerical, and verbal representation of linear, quadratic, polynomial, rational, root/radical/power, exponential, logarithmic and piecewise-defined functions.
- *Graphs*: Determine whether an algebraic relation or given graph represents a function; perform transformations on graphs and operations with functions; determine intercepts, domain, range, intervals of monotonicity, vertex of a quadratic, asymptotes, symmetry; and match graphs to algebraic definitions.
- *Remainder and Factor Theorems*: Use the Remainder and Factor Theorems for polynomial functions.
- *Inverse functions*: Describe the relationship of the graph of a function to that of its inverse; determine the algebraic form of inverse functions.
- *Modeling*: Use functions to model a variety of real-world problem-solving applications.
- *Properties of equations*: Recognize the difference between an algebraic equations and function; describe the relationship among the solutions of an equation and the zeros of the corresponding function; identify the coordinates of the x-intercepts of the graph of a function.
- *Solution of equations*: Solve a variety of equations, including polynomial, rational, exponential, and logarithmic, including equations arising in applications; solve a system of linear equations graphically and algebraically by substitution and elimination; and solve polynomial and rational inequalities graphically and algebraically.

PREREQUISITES

The prerequisite for this course is Intermediate Algebra. You can demonstrate that you have met this prerequisite in one of 3 ways.

1. ACT math score of 20 or higher
2. Sufficient score on the Placement Exam
3. Minimum Grade of C- in Math 1200

TEXTBOOK:
- College Algebra / Miller, Julie − Second Edition, McGraw-Hill 2016, (Includes ALEKS access) ISBN:9781259947643, ALEKS Access only ISBN:125972218X

- ALEKS online access. Online access is provided with the text or may be purchased from www.ALEKS.com (you need a credit card). The textbook is highly recommended, but not required. An e-book is included with access to ALEKS.

- Access to a PC or Mac connected to the web and on which you have privileges to install browser plug-ins. (for ALEKS, above)

Register for ALEKS course with class key: **TBD**

CALCULATOR
The student must own or have access to a scientific calculator that has memory, parentheses, exponent and root keys. A graphing calculator is helpful, but not required. Cell Phones/Smart Phones are not allowed during quizzes and exams.

UNIVERSITY POLICIES:

POLICY STATEMENT ON NON-DISCRIMINATION ON THE BASIS OF DISABILITY (ADA)
The University is an equal opportunity educational institution. Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.

ACADEMIC ACCOMMODATIONS
The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office (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

ACADEMIC POLICIES:

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

MISSED CLASS POLICY
If circumstances occur in accordance with "The University of Toledo Missed Class Policy" (found at http://www.utoledo.edu/policies/academic/undergraduate/index.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.

ACADEMIC DISHONESTY
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.

COURSE EXPECTATIONS:

ATTENDANCE
You are expected to attend each class session. The class will consist of two activities on most days: 1) review of homework problems and 2) presentation of new ideas. The class will generally begin with a call for questions. This is your chance to clarify any problems that you may have. If you attend class, it is assumed that you will participate actively by asking questions and participating in discussions.

If you must miss a class, stop by my office or contact me by email as soon as possible so that I may let you know which sections we covered and what homework was assigned.

Missed exams can be made up only by prior arrangement and must be taken by the next class session. There will be no make-up for quizzes. Quizzes will be taken from homework problems that have been assigned to be completed on or before the date of the quiz.

PREPARATION FOR CLASS
You are expected to prepare for class, to have read the indicated sections prior to the class session and have your homework completed by the indicated date. This is a three credit hour course and you should expect to spend 5 to 8 hours outside of class reading, studying and doing homework problems. The syllabus schedule indicates the order in which the sections will be discussed.

GRADING:
The evaluation for this course will be based upon a percentage of the total of homework, test and final exam scores.

Quizzes and homework	5 to 10%
Exams	60 to 70%
Final Examination (comprehensive)	25 to 30%
Total	100%

Grades are based on the following percentages of total points:

90% - 100%	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
Below 60%	F

ASSESSMENT OF STUDENT LEARNING
Assessments will be based on a combination of homework, quizzes, tests and a final exam. The student will demonstrate the ability to apply mathematical reasoning and skills to solve problems in all the outcome areas.

HOMEWORK
Homework problems allow you to test your knowledge and improve your skills. It is a very important part of this course, since you learn the material by doing the problems. Working together is allowed, even encouraged, however be sure to do your own work. I collect homework on a regular basis. Written homework will be due the next class session unless otherwise specified. All work must be shown neatly and completely, a list of answers or solutions copied from a solutions manual will not receive credit. **Late homework is NOT accepted.**

IMPORTANT DATES
*The instructor reserves the right to change the content of the course material if he perceives a need due to postponement of class caused by inclement weather, instructor illness, etc., or due to the pace of the course.

MIDTERM EXAM:

FINAL EXAM:

OTHER DATES
      The last day to drop this course is: _____

      The last day to withdraw with a grade of "W" from this course is: _____

STUDENT SUPPORT SERVICES
I have office hours every day from [_:__] to [_:__] . If this conflicts with your schedule, be sure to see me before/after class or contact me to arrange an alternate time. See me at the first sign of confusion.

Mathematics tutoring is provided by the Mathematics Learning and Resource Center and is located in the basement of Carlson Library - phone ext. 2176. It operates on a walk-in basis. MLRC hours can be found at http://www.math.utoledo.edu/mlrc/MLRC.pdf . Be sure to bring your book, notes from class, and specific problems you want help with. Tutors are not teachers. They are there only to help with *specific problems.*

COURSE SCHEDULE:

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

Chapter 1, Sections 1-7	Graphs, linear equations and modeling, quadratic equations, complex numbers, inequalities: ***Graphs, Properties of equations, Solution of equations, Modeling***	9 hours
Chapter 2, Sections 1-8	Linear equations, functions and their graphs, transformations, symmetry, piecewise functions, compositions, inverse functions: ***Representation, Properties of equations, Inverse functions, Modeling***	7 hours
Chapter 3, Sections 1-4	Quadratic functions, polynomials of higher degree, synthetic division, roots of polynomials: ***Representation, Remainder and Factor Theorems***	5 hours
Chapter 3, Sections 5-6	Rational functions and their graphs, asymptotes: ***Graphs***	4 hours
Chapter 4, Sections 1-6	Exponential and logarithmic functions: ***Representation, Modeling***	6 hours

Chapter 5, Sections 1-4	Systems of equations and inequalities: ***Graphs, Properties of equations, Solution of equations, Modeling***	4 hours
Chapter 6, Sections 1-3	Matrices and Applications: ***Properties of equations, Solution of equations, Modeling***	3 hours
Chapter 7, Sections 1-3	Analytic Geometry, The Ellipse, Hyperbola and Parabola: ***Graphs, Properties of equations***	2 hours
Chapter 8, Sections 1-3	Sequences and Series: ***Representation, Modeling***	2 hours
		42 hours total