



Course Syllabus
Semester: Fall 2018

Subject: Math Catalog#: 140

Instructor name: J. Nadas Office: L-304 Phone number: 773-481-8340
E-mail address: jnadas@ccc.edu (I PREFER TO BE CONTACTED VIA EMAIL)
 Please use your CCC student email account, our spam filter is very touchy.

Section HJ (class 32405) Tue/Thu, 2:00 PM – 3:45 PM Room: S-209
Office hours: As posted at <http://faculty.ccc.edu/jnadas>
Course Title: College Algebra Credit Hours: 4 Contact Hours: 4

<u>Date</u>	<u>Fall Calendar - the important stuff</u>
08/28	Start of Semester
09/03	Labor Day Holiday
09/20	Test 1 (20% of grade)
10/18	Test 2 (20% of grade)
11/15	Test 3 (20% of grade)
11/22	Thanksgiving Holiday
12/6	Test 4 (20% of grade)
12/13	Final Exit Exam (20% of grade)

Prerequisites:

C or better grade in Math 099, placement test, or consent of Department Chairperson

Catalog Description

Algebra of real and complex numbers, functions, algebraic and graphical solutions of linear, quadratic and systems of equations. Logarithmic and exponential functions. Additional topics from determinants, sequences, series, the Binomial Theorem, Mathematical Induction, and elements of the Theory of Equations. Writing assignments, as appropriate to the discipline, are part of the course.

Course Description:

College Algebra emphasizes the notion of a function as a unifying concept. The families of functions and their characteristics are examined within this course.

Course Objective(s):

1. Solve polynomial, rational, exponential, and logarithmic functions.
2. Solve linear and rational inequalities.
3. Solve systems for linear and non-linear equations.
4. Solve applications involving problem-solving skills.
5. Analyze the graphs of various families of functions.

6. Apply the model and characteristics of various families of functions to scenarios in order to solve real-world problems.

Student Learning Outcomes - Upon satisfactory completion of the course, students will be able to perform the following operations with:

Polynomial Functions:

1. Identify the characteristics of a quadratic function (i.e., vertex, axis of symmetry, and direction of concavity).
2. Compute roots/zeros of a polynomial function by factoring techniques.
3. Estimate the roots/zeros of a polynomial function.
4. Solve polynomial inequalities.
5. Solve systems of linear equations using matrices and determinants.
6. Solve systems of linear inequalities.
7. Solve systems of non-linear equations.

Rational Functions:

8. Simplify rational expressions using the division algorithm.
9. Identify points of discontinuity of a rational function.
10. Identify vertical/horizontal asymptotes and end behavior of rational functions.
11. Solve rational inequalities.

Exponential and Logarithmic Functions;

12. Define exponential and logarithmic functions.
13. Simplify exponential and logarithmic expressions using their properties.
14. Solve exponential and logarithmic equations.
15. Formulate and apply exponential and logarithmic functions to a contextual situation.

It is expected that the following student learning outcomes (Characteristics of Functions) will be embedded, as appropriate, in the study of the family of functions listed above.

16. Identify the domain and range of a function.
17. Determine intervals on which functions are decreasing/increasing, continuous/non-continuous, or piecewise.
18. Identify functions from multiple sources of information (i.e., verbal descriptions, graphs, equations, and tables of values).
19. Relate the effect of transformations (i.e., translations, rescaling, or reflections) on graphs of functions and their corresponding equations.
20. Perform operations (i.e., addition, subtraction, multiplication and division) on functions, including the composition of functions.
21. Decompose a function into a composition of two or more functions.
22. Formulate and apply a function to a contextual situation.
23. Determine the conditions under which a function has an inverse.
24. Identify the inverse of a function from multiple representations.
25. Reformulate a given function into various representations (i.e., verbal, graphical, algebraic, or tabular).

Method of Instruction:

Problem-based activities, collaborative-learning techniques, and lecture. Tutoring is also available.

Classroom environment:

Please see the current Course Schedule and the Wright College Student Handbook for specific guidelines. Our goal is to provide a positive learning environment for every student and we expect each one of you to work toward the same end. Please see me if you have any special needs or concerns so I can direct you to the appropriate resources.

Clientele for Course:

This course is usually intended for students who plan to major in business. Mathematics, engineering, and science majors could be taking Math 143, College Algebra with Trigonometry to avoid taking a separate Math 141 Trig Class.

Method of Evaluation:

The final grade is based on the four tests and the exit test. There will not be any make up tests or extra credit work. If you are unable to take a test at the scheduled time please email me to take it the following day otherwise you will be awarded a zero.

Grade Scale:

A = 90% or above	C = 70% or above but less than 80%	F = less than 60% average
B = 80% or above but less than 90%	D = 60% or above but less than 70%	D/F = less than 40% on Exit test

Classroom activities:

Make sure you understand MY expectations and how they relate to yours. Understand the difference between concept and process. Knowing how to solve problems will not be enough to pass this class. You need to understand the problems. Talk to me, don't expect me to be able to read your mind. Math is not a spectator sport. You do not learn to do Math by watching the teacher do problems. Start by doing all the problems in your book. If your answer is different from the one in the back of the book, make sure you understand what they are asking for. Next, you should offer to explain them to your classmates.

Department Exit Policy:

The highest grade a student, who scores less than 40% on the final exam, can receive is a D. A student who scores less than 40% on the final exam can be allowed, on appeal, to retake the final exam, provided that he/she is doing passing work during the semester. If the student scores better than a 40% on the retake exam, the student's teacher will recalculate the final grade, based on the previously stated policy of student evaluation. Appeal forms are available in the Department Office in room L-320.

Topical Course Outline:

Preliminaries and review, Factoring, Rational exponents, Rational expressions.
Linear Equations and their Applications
Quadratic equations, Complex Numbers
Distance & Midpoint Formulas
Graphs of equations, Straight lines, Parallel and perpendicular lines
Test 1
Functions, Domain & range and Other Properties
Graphing techniques and Mathematical Models
Polynomial Functions, Rational Functions
Inequalities, real zeros, complex zeros
Test 2
Operations on functions; composite functions
One-to-one and inverse functions
Exponential and Logarithmic functions
Properties of logarithms
Solving logarithmic and exponential equations
Financial Models
Test 3
Systems of Linear Equations: Substitution and Elimination
Matrices, Determinants, Cramer's rule
Matrix Algebra
Systems of non-linear equations
Systems of inequalities – Linear Programming
Test 4 & Exit Test

Definition of Active Pursuit of the Course:

You will receive an ADW grade at midterm if you miss either of the first two tests. Missing any two of the last three tests will earn a D or an F. If you are not able to commit to these five dates you should not enroll in the course.

Support Services:

Wright College is committed to your success!

Here is a list of offices you may need to contact during the semester for assistance:

Academic Support Center (Tutoring).....	Room A-245
Center for Academic Success (Advising).....	Room A-120
Writing Center (for help with papers)	Room L-212
Wright in Your Corner (Student Center).....	Room S-100
Financial Aid	Room A-128
Business Services	Room A-138
Math Tutoring.....	Room S-103
Wellness Center (Personal counseling)	Room S-132 (773) 481-8634

Textbook & Materials:

COLLEGE ALGEBRA, 10th edition. Sullivan. Prentice Hall, 2006. ISBN: 0131349562

Additional sources from the Web:

<http://faculty.ccc.edu/jnadas>

Academic integrity: The City Colleges of Chicago is committed to the ideals of truth and honesty. In view of this, students are expected to adhere to high standards of honesty in their academic endeavor. Plagiarism and cheating of any kind are serious violations of these standards and will result, minimally, in the grade of "F" by the instructor.

Student conduct:

City Colleges of Chicago students are expected to conduct themselves in a manner which is considerate of the rights of others and which will not impair the educational mission of the College.

Misconduct for which students are subject to College Discipline (e.g. expulsion) may include the following:

- (1) all forms of dishonesty such as stealing, forgery,
- (2) obstruction or disruption of teaching, research, administration, disciplinary proceeding,
- (3) physical or verbal abuse, threats, intimidation, harassment, and/or other conduct that threatens or endangers the health or safety of any person, and
- (4) carrying or possession of weapons, ammunition or other explosives.

Please note: Any student with a disability who is eligible for reasonable accommodations should contact the Disability Access Center located in room L135, Learning Resource Center of the Wright North Campus or call (773) 481-8016 as soon as possible.