MAT150-W College Algebra (3 credit hours)
(MAT115-W College Algebra (4 credit hours)**)

Instructor: Yasushi NARA

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Semesters:	Winter	Meeting times:	M,W: 13:00-15:50

Description: This is an introductory level course in mathematics with emphasis on algebraic methods. The material of the course includes standard subjects necessary to solve real life problems, for instance, from business and economics, life and social sciences. The topics include natural, real, complex numbers, functions, polynomial, exponential, logarithmic functions, linear, quadratic and other polynomial equations, graphical representations of functions. This course emphasizes on logical and conceptual aspects of mathematics rather than merely focusing on the developing computational skills in mathematics. Development of students' understanding of mathematical/abstract concepts will be supported by appropriate examples and practical applications.

Objectives: First of all, one of the objectives in this course is to provide students with skills in mathematical thinking, especially in quantitative reasoning which is one of the most critical and fundamental aspects of the Liberal Arts program. Secondly, students will develop skills in the applications of mathematical concepts in their areas of study and interest. Note that the latter goal cannot be achieved, without achieving the first goal.

Study Materials: Earl W. Swokowski, Jeffery A. Cole, "Algebra and Trigonometry with Analytic Geometry" classic 11th ed, Brooks/Cole, 2006. ISBN: 0-534-40469-3

Assessment: The components of your grade are the following:
Homework: 20% Quizzes for chapters: 30% Final Examination: 50%

Expected Academic Background: There are no prerequisites for this course.

Course Format and Activities: Class sessions have format of lectures, however questions, even when frequent, are always very welcome. Each class session starts with the questions from students about difficulties in the homework. Therefore, students are expected to complete the homework assigned in the previous class.

** Contact the instructor if you need to take the course MAT115 for 4 credits.

Schedule:

Week 1: 1.1 Real Numbers
1.2 Exponents and Radicals
1.3 Algebraic expressions
1.4 Fractional expressions

Week 2: Exam. for chapter 1
2.1 Equations 2.3 Quadratic equations
2.4 Complex numbers
2.5 Other Type of Equations

Week 3: 2.6 Inequalities
2.7 More on Inequalities
3.1 Rectangular coordinate systems
3.2 Graphs of equations
3.3 Lines

Week 4: Exam. for chapter 2
3.4 Definition of a function
3.5 Graphs of functions
3.6 Quadratic Functions
3.7 Operations on Functions

Week 5: Exam. for chapter 3
4.1 Polynomial Functions of Degree Greater Than 2
4.2 Properties of Division
4.3 Zeros of Polynomials

Week 6: 4.5 Rational functions
5.1 Inverse Functions
5.2 Exponential Functions
Exam. for chapter 4

Week 7: 5.3 The Natural Exponential Function
5.4 Logarithmic Functions
5.5 Properties of Logarithms
5.6 Exponential and Logarithmic Equations

Week 8: Final Examination.

$*$ The schedule above is not strict and not necessary covered everything. All materials listed will be covered if time permits.