**Mathematics 1050 College Algebra**

**Salt Lake Center for Science Education**

**Spring Semester, 2013**

**Mondays, 4:00-6:30 pm**

Instructor: Hugo Rossi, rossi@math.utah.edu

This will be a problem-driven course based on Geometry and Algebra 2, emphasizing the understanding of functions and operations as they are to be understood in Calculus and other advanced topics.

**Useful links**

**Text by Kevin Wortman**

**http://www.math.utah.edu/~gaffney/math1050.html** –you can download a full text for Math 1050. I will recommend specific readings during the course.

**www.math.utah.edu/~pa/1050/** - a different approach to the same materials.

**University of Utah lecture videos:**

Math 1010

http://www.math.utah.edu/lectures/math1010.html

Math 1050

http://www.math.utah.edu/lectures/math1050.html

Math 1060

http://www.math.utah.edu/lectures/math1060.html

There will be weekly homework assignments, two one-hour midterm examinations and a one-hour comprehensive final examination. Final grades will be determined by grads on these examinations and classroom participation.

Students who miss a class will be expected to get the assignment from colleagues, and submit it on time at the next class.

**Syllabus**

1. Quadratic functions and optimization.

 Understanding “completing the square”

 Graphing quadratic functions, interpretation of vertex as minimum or maximum.

2. Sequences

 Sequences: factorial, triangular, square, etc. Approximations

 Series: arithmetic, geometric.

 Counting, binomial theorem.

3. Linear recursive sequences

 Fibonacci- like sequences, characteristic equations and limits.

 Transition (Markov) processes, matrices.

4. Networks, Graph theory and Linear Algebra

5. Vectors and complex numbers

 vector geometry, geometry of the plane.

6. Polynomial calculus.

 Rate of change, optimization.

 Area and Volumes.

 Newton’s method

7. Exponential Processes

 Growth and Decay

 Logistic function, Law of Cooling, Epidemics