Course Description and Prerequisites
This course introduces the students to the fundamentals of problem-solving related to the business and the finance world. As a result, the students will be able to use their skills in algebra and calculus to formulate problems leading to linear and quadratic equations, inequalities, systems and matrices, polynomials, exponential and logarithmic functions, minima and maxima problems.

At the end of the course, the student should be able to:
- become competent at symbolic manipulation of relevant equations and expressions pertaining to the mathematics of business applications
- obtain skills in using computer software to assist in the formulation, analysis of, and solution of real problems, and to enhance their judgment of the reasonableness of results
- engage in substantial mathematical problem solving, both on an individual basis and as part of small groups
- learn mathematical techniques and their application to business problems through modeling real-world situations
- expand their mathematical reasoning skills as they develop convincing mathematical arguments and acquire the ability to read, write, listen to, and speak mathematics within the framework of a business context

Text
The text for this course will be *Math Apps*, by Ronald Harshbarger and James Reynolds (Brooks/Cole, 2012). Buying the hardcopy of the textbook is *not mandatory*; however, students are required to purchase an access code for the online homework system that comes with the eBook. The *teaching notes* and *videos* should be *sufficient* to give you a good understanding of the material.

Materials
Scientific Calculator (graphing calculators are not necessary)

Class Participation
Class participation, student- student interaction and faculty-student interaction is an integral component of any successful online class. Students learn from each other as much if not more than what they learn from the faculty. Class participation and interaction aim to create and nurture an environment of interactive learning, whereby all class participants can learn from each other. Each student is required to participate via the Discussion Board in a number of activities that will facilitate and promote a community learning environment. At the beginning of each week, students will be instructed as to what activities they are supposed to perform for that week. The activities on the discussion board will vary from week to week depending on the material coverage and course requirement for the week. Working in groups is strongly encouraged. Homework is usually assigned at the beginning of the week. The homework and exams is based on an online system known as the *WebAssign*® system (http://webassign.net/). This system allows you to practice and submit your exams and homework via the web. You can discuss the course material and homework problems with your classmates (not the exams! Please).

**Exams and Homework are to be submitted online through WebAssign on Sunday 11:59pm of the week; No work submitted late will receive credit.**
Examination and Grades
The grade in this course will be based on individual assignments, exams and class participation. Final course grades will be weighed as follows:

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<tbody>
<tr>
<td>Assignments</td>
<td>50%</td>
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<tr>
<td>Exams</td>
<td>30%</td>
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<tr>
<td>Class Participation</td>
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Final course grades will be determined by the following scale:

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>100 – 95</td>
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<tr>
<td>A –</td>
<td>94 – 90</td>
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<tr>
<td>B +</td>
<td>89 – 86</td>
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<tr>
<td>B</td>
<td>85 – 83</td>
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<tr>
<td>B –</td>
<td>82 – 80</td>
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<tr>
<td>C+</td>
<td>79 – 76</td>
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<td>C</td>
<td>75 – 73</td>
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<td>C –</td>
<td>72 – 70</td>
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<td>D+</td>
<td>69 – 63</td>
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<tr>
<td>D</td>
<td>62 – 60</td>
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<tr>
<td>F</td>
<td>59 – 0</td>
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Cheating
Cheating on any exam or assignment will result in a zero (0) on the exam and/or an F in the course. Students who cheat will be subject to the student discipline process as outlined in the student handbook.

The instructor reserves the right to change the syllabus at any time. Should the syllabus be changed at any time, the student will be promptly notified!
### Week 1: Chapter 1  Linear Equations and Functions (Part I)
- 1.1 Solving Linear Equations and Inequalities
- 1.2 Functions

**TEST 1**

### Week 2: Chapter 1  Linear Equations and Functions (Part II)
- 1.3 Linear Functions
- 1.4 Systems of Equations
- 1.5 Application of Functions in Business and Economics

**TEST 2**

### Week 3: Chapter 2  Quadratic and other Special Functions
- 2.1 Quadratic Equations
- 2.2 Quadratic Functions
- 2.3 Business Applications

**TEST 3**

### Week 4: Chapter 3  Matrices
- 3.1 Operation with Matrices
- 3.2 Multiplication of Matrices

**TEST 4**

### Week 5: Chapter 5  Exponential and Logarithmic Functions
- 5.1 Exponential Functions
- 5.2 Logarithmic Functions and Properties
- 5.3 Exponential Equations and their Applications

**TEST 5**

### Week 6: Chapter 6  Mathematics of Finance
- 6.1 Simple Interest and Arithmetic Sequences
- 6.2 Compound Interest and Geometric Sequences
- 6.3 Future Value of Annuities
- 6.4 Present Value of Annuities
- 6.5 Loans and Amortization

**TEST 6**

### Week 7: Chapter 7  Introduction to Probability
- 7.1 Probability and Odds
- 7.2 Union, Intersection and Compliment of Events
- 7.3 Union, Intersection and Compliment of Events
- 7.5 Counting: Permutation and Combination
- 7.6 Permutations, Combinations and Probability

**TEST 7**

### Week 8: Chapter 9  Derivatives
- 9.1 Limits
- 9.2 Continuous Functions
- 9.3 Rates of Change and Derivatives
- 9.4 The Derivative Formula
- 9.4 The Product and Quotient Rule
- 9.4 The Chain Rule

**TEST 8**

### Week 9: Chapter 10  Applications of Derivatives
- 10.1 Relative Maxima
- 10.2 Concavity
- 10.3 Optimization in Business and Economics
- 10.4 Applications of Maxima and Minima

**TEST 9**