I. Course ID (department and course number) MAT 104

II. Course Name: Contemporary Mathematics

III. Number of Credits Awarded for Course: 3 credits

IV. Prerequisite or Co-requisite Courses or Academic Standing (if applicable):

Must exit College Placement Tests in Basic Math & Algebra

V. Indicate if New or Modified Course (if modified course, list old course ID)

New course

VI. Semester and Year Course Will First Be Offered (or, if a modified course, semester and year when revised course will be offered):

Spring 2009

VII. Name and Telephone Number and/or e-mail Address of Department Chair or Other Appropriate Contact Person

Catherine Sirangelo-Elbadawy
Dr. Ferdinand Orock, Basic Math/Algebra Coordinator

VII. Detailed Course Description

This course is designed primarily for students majoring in selected liberal arts and social sciences including non-mathematics, non-science, and non-business fields. Topics covered will include the history of mathematics, number theory, the metric system, consumer mathematics, linear inequalities, functions and relations, polynomials, geometry, and introductory probability and statistics. The course emphasizes mathematical concepts and understandings of real-life problems of interest to liberal arts and social sciences.

IX. Outline of Course Objectives

Upon successful completion of this course, students will be able to:

1. Use appropriate technology to enhance mathematical thinking and understanding, solve mathematical problems, and judge the reasonableness of their results.

2. Explain mathematical information verbally, numerically, and algebraically.

3. Explain the limitations of mathematical and statistical models.

4. Apply mathematical reasoning skills necessary in life by solving real-life problems in consumer mathematics.

5. Analyze and solve application problems by using formulas, graphs, tables and drawing conclusions from them.

6. Explain how mathematics knowledge can be used in an applied situation and interpret solutions in the context of the situation.

X. Texts, Journals, and Other Materials Used In Course

1) Proposed student texts.

Blitzer, Robert. *Thinking Mathematically*, 4th edition, Pearson - Addison Wesley, 2008.

2) Audiovisual Materials And Computer Software.
The instructor will have access to: Instructor Solutions Manual, PowerPoint Lecture Slides, and mymathlab at www.mymathlab.com. MyMathLab is powered by Coursecompass-Pearson Education for online teaching and learning. The instructor will be able to use to this software to grade homework, offer tutorials, and track students progress.

3) Supplementary Books:

* Berlinghoff, William P. Math Through the Ages: A Gentle History for Teachers and Others. Washington, DC: Mathematical Association of America, 2004

* Bewersdorff, Jorg. Luck, Logic and White Lies: The Mathematics of Games. Wellesley, Mass. : A.K. Peters, c2005

* Bradley, Michael J. The Birth of Mathematics: Ancient Times to 1300. New York:
Facts on File, 2006.

* _____ Mathematics Frontiers: 1950 to the Present. New York:
      Chelsea House, 2006.

* Brezina, Corona. Al-Khwarizmi: The Inventor of Algebra. New York : Rosen Pub. Group, 2006.

* Derbyshire, John. Unknown Quantity: The Real and Imaginary History of Algebra. Washington, D.C.:
Joseph Henry Press, c2006.

* Devlin, Keith. The Math Gene: How Mathematical Thinking Evolved and Why
  Numbers Are Like Gossip. New York, N.Y.: Basic Books, c2000.

* Dvorkin, Howard S. Credit Hell: How to Dig Out of Debt. Hoboken, N.J. : John Wiley & Sons, c2005

* Everitt, Brian. Chance Rules: An Informal Guide to Probability, Risk, and Statistics. New York:
Springer, c1999.

* Gwartney, James D. Common Sense Economics: What Everyone Should Know
About Wealth and Prosperity. New York: St. Martin's Press, 2005.

* Hasan, Heather. Archimedes: The Father of Mathematics. New York: Rosen Pub. Group, 2006.

* Harkleroad, Leon. The Math Behind the Music. New York: Cambridge University Press, 2006.

* Joseph, George Gheverghese. The Crest of the Peacock: The Non-European Roots of Mathematics.
Princeton, N.J.: Princeton University Press, 2000.

 * Mazur, Joseph. Euclid in the Rainforest: Discovering Universal Truths in Logic and Math.   New York:
Pi, 2005.

*Paulos, John Allan. <u>Innumeracy: Mathematical Illiteracy and Its Consequences</u>.
  New York: Hill and Wang, 2001.

* Rosenthal, Jeffrey Seth. <u>Struck by Lightning: The Curious World of Probabilities.</u>
  Washington, D.C. : Joseph Henry Press, 2006.

* Rudman, Peter Strom. <u>How Mathematics Happened: The First 50,000 Years</u>.
   Amherst, NY: Prometheus Books, 2007

* Salkind, Neil J. <u>Statistics For People Who (Think They) Hate Statistics</u>. Thousand Oaks, :   SAGE
Publications, 2007.

* Stein, James D. <u>How Math Explains the World</u>. New York: HarperCollins: Smithsonian Books, c2008

* Zilliak, Stephen Thomas. <u>The Cult of Statistical Significance: How the Standard Error Costs Us</u> <u>Jobs,
Justice and Lives</u>. Ann Arbor: University of Michigan Press, 2008.

XI. Grade Determinants

Students' learning outcomes listed will be determined on their performance in examinations,
homework, a term paper, and a presentation. Students should be able to demonstrate an
understanding of mathematical concepts including: the history of mathematics, number theory, the
metric system, customer mathematics, functions, geometry, and an introduction to probability and
statistics. In addition, student should be able to verify solutions to problems using appropriate
technology. The grading system will be as follows:

1.	Three exams	45%
2.	Homework	10%
3.	Term Paper & Presentation	15%
4.	Final Exam	30%
		100%

XII. Number of Papers and Examinations

   One term paper & presentation and 4 exams

XIII Schedule of Topics to Be Covered

Week	Suggested Topics
1	An Introduction to Problem Solving Problem Solving and Critical Thinking: Explorations with Patterns, Algebraic Thinking A brief history of Mathematics
2	**Chapter 5.** Number Theory: Prime and Composite Numbers; The Integers; Order of Operations; The Rational Numbers; The Irrational Numbers; Real Numbers and Their Properties.
3	Exponents and Scientific Notation; Arithmetic and Geometric Sequences.
4	**Review & Test 1**
5	Algebraic Expressions and Formulas; Linear Equations in One Variable; Applications of Linear Equations.
6	Ratio, Proportion, and Variation; Linear Inequalities in One Variable.
7	**Chapter 7.** Functions. Linear functions and their graphs; Systems of Linear Equations in Two Variables; Linear Inequalities in Two Variables.
8	**Review & Test 2**
9	**Chapter 8.** Consumer Mathematics and Financial Management. Loan payments, Credit cards, and Mortgages, percent, Sales Tax, and Income Tax. Simple versus compound interest, saving bonds.

10	**Chapter 9.** Measuring Length; The Metric System; Measuring Area and Volume, Measuring Weight and Volume.
11	**Chapter 10. Geometry:** Problems relating polygons, quadrilaterals, perimeter; area and Circumference, volume; right triangle trigonometry.
12	**Review & Test 3**
13	**Chapter 11.** Counting Methods and Probability. The Fundamental Counting Principle, Fundamentals of Probability, Events Involving Not and Or; Odds; Events Involving And; Conditional Probability.
14	**Chapter 12.** Statistics. Sampling; Measures of Central Tendency; Measures of Dispersion; The Normal Distribution; Scatter plots, Correlation, and Regression Lines.
15	**Review & Final Exam**