Math 210: The Art of Mathematical Thinking
Online Course – Summer 2014

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Course Description
This is a math course unlike any other you have likely taken. We will explore mathematics trying to get at the heart of the subject. We will explore it creatively and imaginatively as well as logically. We will examine certain specific areas of mathematics to see why it is a beautiful and intriguing subject. The goal of this course is to give you a deeper understanding and appreciation of mathematical issues and give you new insight and perspective for how to view the world.

Important Dates
June 5, 2014 – Course opens on Blackboard
June 9, 2014 – First Day of Class
July 30, 2014 – Biography Paper Due
July 31, 2014 – Project Due

Course Format
This is a completely online course. It will be split into units which will take up about a week each. Units will generally consist of some readings, discussion of topics on online discussion boards, one or more “homework” deliverables, and a quiz. The form of the deliverables will vary from unit to unit. This course will require active participation in online discussions which will be graded.

Papers
As part of this course, you will be asked to write a short (2-3 page) paper. It will be a short biography of a mathematician who strikes your interest and should focus on your reaction and what you find interesting rather than an analysis of their mathematical research. You have wide latitude here and I will provide you with some suggestions.

Final Project
You will also be asked to create a final creative project and accompanying short presentation for the course. Past projects for the course have included origami, illustrations of card tricks based on mathematics, a knitted Mobius Strip, photo collages illustrating mathematical ideas using as models flowers and plants in Forest Park or architecture around St. Louis. Possibilities are limited only by your imagination. I would love to see someone relate the course material to whatever their field of interest happens to be.
The project will be presented to the class in an appropriate form online.

Grading
Your score in this class will be determined by weighting your online participation, homework, quizzes, paper, and project as follows:

- Participation in Online Discussions 20 %
- Homework Deliverables 20 %
- Quizzes 25 %
- Biography Paper 10 %
- Final Project 15 %
For those of you taking the course Pass/No Pass, a grade of D or better will be required to receive a Pass. Grades will be assigned using a scale no more severe than:

- 90% or higher – A
- 80% - 90% – B
- 70% - 80% – C
- 60% - 70% – D
- Lower than 60% – F

**Tentative Course Schedule** (* Subject to Change)

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<td>Chapter 1</td>
<td>6/9/14 – 6/12/14</td>
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<td>2</td>
<td>Quantification, Estimation, Unit Conversion</td>
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<td>6/11/14 – 6/16/14</td>
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<td>3</td>
<td>Primes, Modular Arithmetic, Cryptography</td>
<td>2.3-2.5</td>
<td>6/15/14 – 6/19/14</td>
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<td>4</td>
<td>Rational and Irrational Numbers, Real Numbers</td>
<td>2.6-2.7, 4.1</td>
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<td>5</td>
<td>The Fibonacci Sequence and the Golden Ratio</td>
<td>2.2, 4.3</td>
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<td>6</td>
<td>Symmetry, Platonic Solids, Duality</td>
<td>4.4, 4.5</td>
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<td>Curvature</td>
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<td>Infinity and Cantor's Theorems</td>
<td>Chapter 3</td>
<td>7/20/14 – 8/1/14</td>
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* I reserve the right to switch topics and/or order thereof in response to time, student interest, etc.