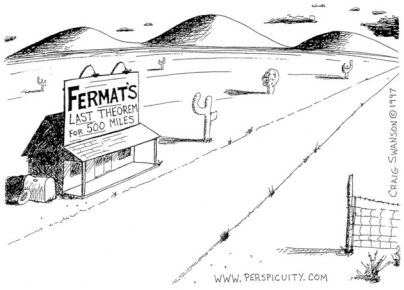
Claremont McKenna College, Spring 2010
MATH 195: Algebraic Number Theory



$$a^n+b^n=c^n$$

Instructor: Lenny Fukshansky, Adams Hall 218, (909) 607 - 0014, lenny@cmc.edu
Time: Tuesdays and Thursdays, 2:45 – 4:00 pm

Prerequisites: MATH 172, or MATH 171 and permission of instructor.

Text: Algebraic Number Theory and Fermat's Last Theorem (3rd sub edition), by Ian Stewart and David Tall (published by AK Peters, Ltd.)

Course Description: Algebraic Number Theory originated in 1637 with the legendary note by Pierre de Fermat on the margins in his copy of ``Arithmetica" by Diophantus:

It is impossible to separate a cube into two cubes, or a fourth power into two fourth powers, or in general, any power higher than the second into two like powers. I have discovered a truly marvelous proof of this, which this margin is too narrow to contain.

Since the publication of Fermat's note, hundreds of professional mathematicians and amateurs were trying to reproduce Fermat's miraculous proof. Although an actual proof of this statement was only produced in 1994 by Andrew Wiles, numerous attempts to prove Fermat's claim played a crucial role in developing our modern understanding of the algebraic theory of numbers. The goal of the present course is to give an introduction to the subject and some of its methods. The topics will include algebraic number fields and rings of integers, discriminant, norm, class number, and some partial cases of Fermat's Last Theorem.

Grading: Based on a few homework assignments / problem sets.

Registration is open to students from all of the Claremont Colleges, and I am happy to talk to anyone interested in this course!