MANY CHEERFUL FACTS

presents

“Nine Magic Discriminants”

a talk by Matthew Satriano

13:10 – 14:00 on Thursday, November 15, in room 1015.

Many of us are probably familiar with the result that the ring of integers of the imaginary quadratic field $\mathbb{Q}(\sqrt{-d})$ is a PID if and only if $d = 1, 2, 3, 7, 11, 19, 43, 67$, or 163. But probably not too many of us have ever seen a proof. After saying a few words about the very interesting history of this class number problem, I'll present Heegner's proof, which relates the question to modular forms and a certain degree 24 polynomial.

I am the very model of a modern Major General,
I've information vegetable, animal, and mineral,
I know the kings of England, and I quote the fights historical
From Marathon to Waterloo, in order categorical;
I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse!

— Gilbert & Sullivan, $P \circ P$

The website for Many Cheerful Facts is
http://www.math.berkeley.edu/~mcf