Bi-State Math Colloquium

Who: Rob Calcaterra
When: Thursday, September 13, 4:00 pm
Where: Ottensman 122, UW-Platteville

Cyclotomic Polynomials

The roots of a cyclotomic polynomial are the primitive complex roots of the equation $x^n = 1$. These polynomials were extensively investigated by Gauss. He was able to prove many results regarding these polynomials. In particular, he was able to use tools from abstract algebra to verify these polynomials are irreducible over the field of rational numbers. He further used this fact to show which regular polygons can be constructed using a traditional straightedge and compass. Cyclotomic polynomials can also be used to demonstrate that there are no non-commutative finite division rings (Wedderburn's Theorem). This colloquium will explore some of these results.

Rob Calcaterra has been a member of the mathematics faculty on this campus since receiving his doctorate from UW-Madison in 1983. He enjoys working with students and has advised many students with their senior seminar projects. Like many mathematicians, he likes to work on puzzles and regularly submits solutions to problems posed in *Mathematics Magazine*.

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