

VCU Math Spring 2020 Course

Combinatorics Topics: Posets & Mobius Inversion (MATH 750)

Craig Larson

TThF 2:00–2:50

Course Description. We will begin with basic results from the theory of partially ordered sets, turn to Rota’s famous 1964 paper, “On the Foundations of Combinatorial Theory I. Theory of Mobius Functions”, and look at some applications in number theory and combinatorics.

We will also spend some time applying these ideas to partially ordered sets of graphs—following ideas of chemists like Doug Klein—to see how they can be used as a tool for calculating graph (and molecular) properties.

We will do theory on TTh, and meet in a computer lab on F. There will be a Sage/computer component where we actually do computations (no computing experience is assumed)—the idea is to make these ideas of both theoretical *and* computational use.

