Syllabus for Math 582E:
Computational Number Theory

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Winter Quarter 2009 at University of Washington

- Web page: `http://wiki.wstein.org/09/582e`

- Office Hours: Tuesday 1–3 PM

- Your Grade: Homework is 100% of your grade. No exams and no final project this quarter (there will be one next quarter). Homework will be due on Wednesdays.

- Grader: Craig Citro (and me)

- Texts: `http://wstein.org/5canz` and links from the course webpage

- Very rough plan:

  1. **First Quarter:** Learn to compute as much as we can with objects involved in Dedekind's *the analytic class number formula* and the *Birch and Swinnerton-Dyer conjecture*: class groups, Mordell-Weil groups, zeta and L-functions. Use these unifying conjectures to motivate what we compute.

  2. **Second Quarter:** Modular forms and modular abelian varieties (and linear algebra over number fields). Integer factorization (Bill Hart minicourse).