Math 574: Topics in Logic and Foundations

Spring 2005, MWF 9:05–9:55 AM, 101 Pond, Schedule 434329

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The web page for this course is

> `http://www.math.psu.edu/simpson/courses/math574/.`

This course is intended for graduate students in mathematical logic. I will carefully introduce a variety of topics which are important in contemporary mathematical logic, but not normally covered in our basic logic sequence, MATH 557–558. Among the topics:

- unsolvable problems in number theory (Hilbert's 10th Problem)

- unsolvable problems in group theory (the Word Problem for groups, etc.)

- unsolvable problems in geometry/topology

- recursively enumerable sets and degrees

- priority arguments

- randomness and Kolmogorov complexity

- models of arithmetic

- independence results via nonstandard models