MATH 618 -- Number Theory: Riemann zeta function over global fields of positive characteristic; Hasse-Weil zeta functions.

Spring 2016

Instructor: Katia Consani

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Class Times: T-TH, 10:30-11:45 am.
Room: TBA.

References: The official textbook for this course is:
but the following references may be useful for complementary reading:
S. Lang, Algebraic Number Theory , Springer-Verlag.
Silverman, Joseph H., The arithmetic of elliptic curves.
J.S. Milne, Lectures on etale cohomology , Notes from the internet.

Outline of the course: This course is a semester long, graduate course in algebraic number theory centered on the study of the Riemann zeta function associated to global fields of positive characteristic and more generally of the Hasse-Weil zeta function of an algebraic variety defined over a finite field. The course will also develop selected topics of the theory of etale cohomology.

Prerequisites: Abstract algebra: including groups, rings and ideals, fields and Galois theory, e.g. 110.401-402 (or equivalent).

Special Notice: This course is listed as a graduate-level course and will be developed as such even in the presence of undergraduate students or graduate students in other subjects i.e. without a full undergraduate math major. That means I will expect a level of scholarly and mathematical maturity appropriate to a (first-year) graduate student in mathematics. In particular, material may go somewhat quickly and students will also be expected to pick up some of it on their own. I warmly suggest ALL STUDENTS ENROLLED to take notes in class.

Grading: The final grade will be determined from presence and participation at class time.

Important Note: TBA