Math 285  
Number Theory  
Introduction to the Langlands Program  
D. Blasius

This course will introduce the fundamental objects of the theory automorphic forms (such as automorphic representations, Hecke algebras, L-functions, L-groups, etc) and show how the theory works with reference to one of its major goals: the principle of functoriality. Especially, we will define base change, the transfer between inner forms, the Converse Theorem, and the Jacquet-Gelbart lift, and apply these to establish the known cases, in dimension 2, of Artin’s conjecture. We will also explain the attachment of Galois representations to holomorphic modular forms, putting this result into the larger framework of Langlands’ global conjectures. If time permits, we will discuss the local Langlands correspondence and its recent proofs by Harris, Taylor, and Henniart.

The course will explain ideas at the price of sketching many proofs. It is aimed at students and faculty with some background in Number Theory who want an introduction to basic topics in the area.

The course meets MW 4:30 to 5:45 in MS 5233, but at the first meeting Monday April 5 we will discuss the possibility of shifting the Monday meeting to Friday.