L-values, Selmer groups, and their connections

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This series of three lectures will be about the expected connections between special values of L-functions and the orders of related Selmer groups, a vast generalization of Dirichlet's class number formula. In the first lecture we will introduce the main players and some of the primary conjectures about them, with an emphasis on examples. In the next two talks we will describe some of the ways in which progress has been made, especially through Eisenstein congruences and Euler Systems. The target audience is non-experts, though we hope to be able to describe some of the most recent results in the field.