You are invited to join us for a department colloquium:

**Title:** Computing with the real numbers

**Speaker:** Kerry Ojakian, Queens College Mathematics

**Date:** Wednesday, March 3, 12:15–1:05

**Location:** Kiely 061

**Abstract:** Which functions are “computable”? The area of mathematical logic called *computability theory* attempts to answer this question by developing various theoretical computing machines, and asking what these machines can and can not do. Much work has considered the case in which the input to the function/machine is a natural number; in this case there is a generally agreed upon notion of what it means for a function to be “computable”. More recently, people have looked at what happens when we allow the input to be a real number. Unlike a natural number, a real number may have an infinite, non-repeating decimal expansion, so we can consider a real number to be an infinite object. Thus, it seems that in a finite amount of time, a machine can only see a finite part of the real number. There are various competing ways to build theoretical machines to deal with this property of real numbers. Over the reals (unlike the naturals), the different models give different answers to the question of which functions are computable; there is not a generally agreed upon notion of what computable means over the reals. I will discuss various models, some of their key properties, and some relationships between them.

For more information and upcoming speakers, visit [http://qc.edu/math/colloq.html](http://qc.edu/math/colloq.html). Contact chanusa@qc.cuny.edu to speak in the colloquium or to be added to the mailing list.