THE MATHEMATICS DEPARTMENT PRESENTS

# A MATHEMATICS COLLOQUIUM

THURSDAY, May 21, 2009
BOND HALL 217
4:00 pm

Title: **A proof of the Central Limit Theorem via the Fourier transform**

Speaker: **Daisy Phillips**, Western Washington University

Abstract: The Fourier transform is a widely used tool in mathematics. In the area of probability, it is closely linked with the characteristic equation of a probability density function. In my talk I will introduce the Fourier transform (FT) on the real line, compute the FT of a few important functions, and use the FT to outline a proof of a very important result in probability–the Central Limit Theorem. This theorem says that the sum of independent, identically distributed random variables behaves like a normal distribution as we take a sufficiently large number of such variables. In particular, the result provides an explanation of why the normal ”bell” curve is such a prevalent shape in probability. This talk should be accessible to anyone with an introductory course in analysis.

Refreshments will precede the talk at 3:30pm in Bond Hall 300
courtesy of Dr. Árpád Bényi