

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, November 13, 2018
LD 265

Speaker: Debolina Chatterjee
Department of Mathematical Sciences, IUPUI

Title: A Discretization Approach for Finding Limiting Average Availability of a Repairable System

Abstract:

In machine maintenance, it is important to find out the limiting average availability of the system. In literature we have the answer to it for the following cases in particular: (1) the repair time is exponential; or (2) there is only 1 supporting spare and only 1 repair facility. In our setting, a one unit system is supported by arbitrary s spares and r repair facilities; repair times are independent and arbitrary; and the system is periodically monitored, which in effect discretizes the time variable. We demonstrate that this discretization approach, though computationally intensive, closely approximates the existing results in the special cases [the $(r = 1, S = 1)$ and $(r=2, s=2)$ respectively]; and hence it is applicable to the more general setting. Also, we exhibit the gain in limiting average availability as additional spare units and additional repair facilities are included in the model.