



# STATISTICS SEMINAR



## **\*MASTER REPORT\***

### **Parametric and Nonparametric Multiple Comparisons in One-Way Layout**

**Sadaf Waris**  
**Department of Statistics**  
**Kansas State University**

DATE: June 8, 2005

TIME: 3:00 pm

PLACE: Dickens 106

REFRESHMENTS: 2:30 – Dickens 108

---

Multiple comparison procedures are useful techniques for detecting differences among treatments in  $k$ -sample problems. This report compares the parametric and nonparametric pairwise multiple comparisons procedures in a one-way completely randomized design. We generate data for 3 and 6 treatments from normal distributions with equal means and with different means, and perform multiple comparisons tests using nonparametric pairwise and combined ranking strategies as well as two parametric procedures for such comparisons; those called Tukey's multiple comparisons procedure and Fisher's LSD method. We also consider the cases where the data is generated from two symmetric but heavy-tailed non-normal distributions to see if nonparametric rank-based multiple comparisons procedures are more reliable and/or more robust to the violation of assumption of normality than the traditional parametric methods.

\*\* Upcoming seminars may also be found on the web at <http://www.ksu.edu/stats/current.seminars/nav.currentseminars.html>.