

Center for Talent Development—Northwestern University
2003-2004 Saturday Enrichment Program
Session III

Statistical Research

Instructor: TJ Leone

Course Description

Students will construct a complex sample space and use computer simulations to observe empirical probability distributions based on that space. As time permits, students will also explore applications of this distribution to statistical research.

Objectives

- To build connections between theoretical probability and empirical experiments.
- To develop understandings necessary for mathematical understanding of statistical analysis.

Evaluation process

Students will have the opportunity to demonstrate their learning through tests, class discussions, and class work.

Text/resources used

Handouts, materials and lessons developed by teacher and researchers at Northwestern. NetLogo software

Course Schedule

Course topics will include:

- Combinations
- Permutations
- Samples and sample spaces
- Single and compound events
- Independent and dependent events
- Theoretical and experimental probability
- Pascal's triangle
- Sampling strategies
- Sample analysis

TJ owns a solo business (Leone Learning Systems, Inc.) that offers tutoring and educational software. He has a BA in Math and MS in Computer Science from the City College of New York. He is a former Montessori teacher and certified substitute teacher for the state of Illinois. He spent two years in graduate studies in education and computer science at Northwestern, and six years developing educational software at Northwestern. His web site is <http://www.leonelearningsystems.com>.