

1035-K1-91

Steven J Miller* (sjmiller@math.brown.edu), Mathematics Department, Brown University, 151 Thayer St, Providence, RI 02912. *The Pythagorean Won-Loss Theorem: An introduction to modeling.*

I teach Brown's theoretical stats course. A challenge is students' varied interests & abilities. There are pure and applied math, econ, and compsci majors. Students write a paper on any problem interesting them. This year's topics ranged from melodies in African drum music to the NCAA basketball tourney to random walks.

It is challenging finding a topic all enjoy; below is one which works well. Bill James noticed a simple formula for a baseball team's won-loss percentage. I have a paper deriving this, which I discuss in my course. It is a terrific topic as most students are familiar with (if not fans of) baseball, it provides a great introduction to modeling real world problems, and there are interesting theoretical complications (such as structural zeros in rxc tables). I present the material twice. The first is a brief overview at the start of the course, piquing students' interest in statistics and introducing many of the techniques and theory we see in the semester. Later I devote a lecture to the details. That class ends with open problems (incorporating more features and applying to other sports), allowing interested students to investigate further. (Received July 21, 2007)