

Summer 2005 Program

Research Experience for Undergraduates

The Mathematics of Games of Chance

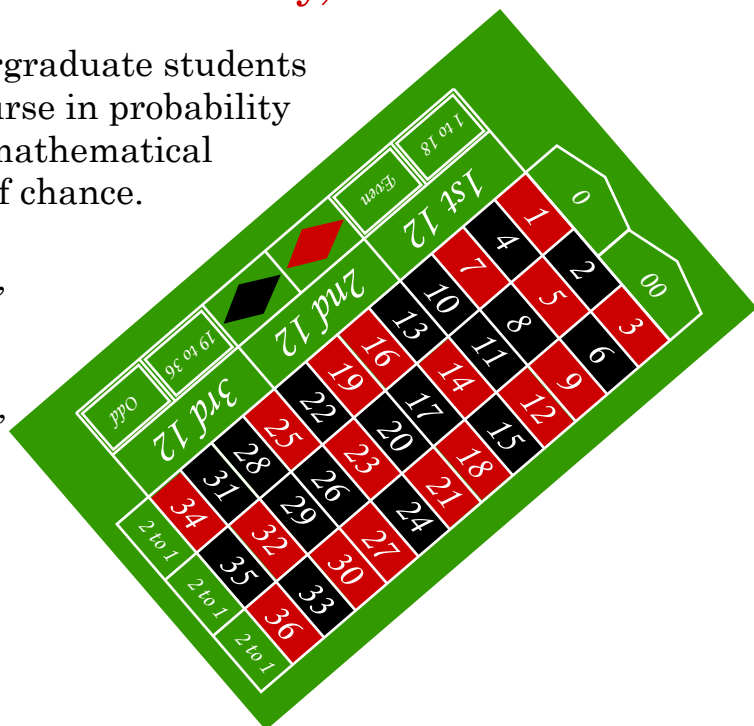
June 6--July 15, 2005

University of Utah, Salt Lake City, Utah

This REU summer program, intended for undergraduate students who have already completed a one-semester course in probability (or the equivalent), will be concerned with the mathematical aspects of casino gambling and specific games of chance.

Theoretical topics will include house advantage, gambler's ruin formulas, martingales, betting systems, conservation of fairness, game theory, utility functions, bold play, proportional betting, shuffling, dealing, and card counting.

Applied topics will include slot machines, roulette, keno, craps, faro, baccarat, trente et quarante, blackjack, video poker (Jacks or Better, Deuces Wild), house-banked poker (Three-Card Poker, Let It Ride, Caribbean Stud), and poker (seven-card stud, Texas hold 'em).



Financial support is available for United States citizens, nationals, or permanent residents.

Participants will be paid a \$2,000 stipend. Out-of-state students will be reimbursed \$250 for travel expenses.

On-campus housing is available.

Students will be expected to complete a research project on one of the topics. The project may require computing. Computer skills will be taught as needed.



Applications are due by:

February 15, 2005

Applicants will receive notification of acceptance by:

February 28, 2005

For more information, including applications, visit:

www.math.utah.edu/vigre/reu

As Louis Bachelier wrote in 1914, "It is almost always gambling that enables one to form a fairly clear idea of a manifestation of chance; it is gambling that gave birth to the calculus of probability; it is to gambling that this calculus owes its first faltering utterances and its most recent developments; it is gambling that allows us to conceive of this calculus in the most general way; it is, therefore, gambling that one must strive to understand, but one should understand it in a philosophic sense, free from all vulgar ideas."