

Tucker, Jeffery, and Todd Timberlake. "Statistical Analysis of the Randomness of Prime Numbers." *Proceedings of the Harriett J. Walton Symposium on Undergraduate Mathematics Research* (2007) 5: 15-19.

Abstract. Prime numbers seem to be distributed randomly among the integers. However, it is known that primes display some deviations from purely random behavior. In order to analyze the randomness of the primes we have carried out an extensive investigation of the statistical properties of subsequences of primes as well as sequences of random primes. By comparing the statistical properties of prime numbers to the properties of random numbers and random primes we can shed some light on how and why prime numbers deviate from true randomness. The two models of random primes used in this study are Cramer primes (sets of random integers that follow the Prime Number Theorem) and Hawkins primes (sets of integers produced using a random sieve). The primes and random primes are unfolded so that their mean spacing is one and then the number variance, skewness, and excess of the unfolded primes are examined.