

Please visit the course website: <http://courses.ece.uiuc.edu/ece534/fall07/index.html>

2. Convergence of a Sequence of Random Variables

Assigned reading: Chapter 2 and Sections 8.1-8.3 of the course notes.

Problems to be handed in:

2.3, 2.5, 2.7, 2.9, 2.11, 2.13, 2.15, 2.19, 2.21, and 2.23 from the course notes.

- For problem 2.11, estimate the required probability using the central limit theorem and the Chernoff bound, and compare these results to the exact probability which can be computed numerically.
- In problem 2.13(c), if there is not enough information to answer whether certain forms of convergence take place or not, you can say so.
- For problem 2.21, it may be useful to know that the characteristic function $\Phi_X(u)$ of a random variable X is continuous in u . Thus, if a function is not continuous in u , then it cannot be a characteristic function.