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| **Course** | ECE 60000 – Random Variables and Signals  |
| **Type of Course** | Graduate course |
| **Catalog Description** | Engineering applications of probability theory. Problems on events, independence, random variables, distribution and density functions, expectations, and characteristic functions. Dependence, correlation, and regression; multi-variate Gaussian distribution. Stochastic processes, stationarity, ergodicity, correlation functions, spectral densities, random inputs to linear systems; Gaussian processes. |
| **Credits** | 3 |
| **Contact Hours** | 3 |
| **Prerequisite Courses** | ECE 30200 or equivalent |
| **Textbook** | A. Leon-Garcia, *Probability, Statistics, and Random Processes for Electrical Engineering*, Pearson, Current Edition. |
| **Course Objectives** | This course discusses engineering applications of probability theory and stochastic processes, and the use of stochastic modeling in queuing theory. |
| **Lecture Topics** | 1. Vector random variables
2. Sums of random variables
3. Random processes
4. Analysis and processing of random signals
5. Markov chains
6. Queueing theory
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| **Computer Usage** | Low  |
| **Laboratory Experience** | None |
| **Design Experience** | Low  |
| **Coordinator** | Chao Chen, Ph.D. |
| **Date** | 10/01/2018 |