Statistics 5415 is a semester long course in advanced statistical methods and serves to meet the statistics requirements for graduate students across departments. Suggested prerequisites include a course in basic probability theory, calculus, and linear algebra.

Text
The required text is *Probability and Statistics* (3rd ed.) by Morris DeGroot and Mark Schervish. Chapters 1–3 of the text contain a useful summary of the probability prerequisites. All students are required to review this material before coming to class. The book is not a substitute for lectures so please do not miss class. Broadly speaking, I plan to cover the following topics without following the text too closely:

1. Random variables and vectors, transformation of random variables, etc. (Chapters 3 and 5)
2. The idea of conditioning, conditional distributions, conditional expectation, etc. (Chapter 4 and class notes)
3. Multivariate normal random vectors and their properties (Chapter 5 and class notes)
4. Basic asymptotic theory including WLLN and CLT (Class notes)
5. Maximum likelihood estimators and their properties (Chapter 6)
6. Hypothesis tests and confidence intervals (Chapter 7)
7. $\chi^2$-tests for goodness of fit and independence (Chapter 9)
8. Simulation and bootstrap (Chapter 11)

Grading
The overall grade will be based on some homework problem sets (15%), a midterm (40%), and a final exam (45%). No late homeworks will be accepted. There will be no makeup for the midterm. If you miss it your final will count for 85% of the grade. The final exam is compulsory to pass the course. Please make sure that you do not miss it. I will deny all requests for a makeup unless the circumstances happen to be really extraordinary.

Class Time
Tuesday and Thursday 12:30–1:45 in Monteith 311.

Exams
TBA

Contact Information
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- Email: gautam.tripathi@uconn.edu
- Course web page: [http://web2.uconn.edu/tripathi](http://web2.uconn.edu/tripathi)
- Office hours: Tuesday 2–3 or by appointment