MATH 426 Probability and Mathematical Statistics I 3 credits each.

The theories of probability and statistics are developed through a systematic study of probability spaces, random variables, discrete and continuous probability distributions, mathematical expectation, moment generating functions, moments of linear combinations of random variables, sampling theory and distributions, theory and applications of estimation and hypothesis testing, regression and correlation and analysis of variance.

Math 426-427 is a two semester sequence that forms a capstone course in the statistics offerings. This is a required sequence for mathematics majors who minor in statistics. The subject matter of these courses is particularly suited to persons who wish to go on to graduate study in statistics or to employment at an entry level statistics position in business, industry or government.

Syllabi:

1) Math 426
   - (a) Probability.
   - (b) Random variables and random vectors.
   - (c) Expectation.
     1. Special expectations.
     2. Moment generating functions.
     3. Conditional expectation.
   - (d) Examples of probability distributions.
     1. Binomial, Negative binomial, and Poison.
     2. Geometric and Hyper geometric.
     3. Distributions associated with the normal.
   - (e) The bivariate normal distribution.
   - (f) Asymptotic distributions.
     1. Convergence in distribution.
     2. Central limit theorem.

Math 426 is a LEVEL III course and required of all statistics majors. It is an elective course for all mathematic majors.