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*Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca*

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**Instructor:** [Dr. Jinko Graham](#)

**Prerequisite:**

STAT 330 and its core concepts such as joint, marginal and conditional distributions; means, variances, covariances and correlations; distributions of functions of discrete bivariate random variables; and common families of distributions.

**Textbook:** *Statistical Inference 2nd Edition* by Casella and Berger, publisher Duxbury/Thompson Learning, c.2002

**Calendar Description:**

Distribution theory, methods for constructing tests, estimators, and confidence intervals with special attention to likelihood methods. Properties of the procedures including large sample theory. **Quantitative**

**Outline:**

Assuming the prerequisite background in chapters 1-4 of the text, the course will cover:

1. Review of distributions of functions of continuous bivariate random vectors (sections 2.1, 4.3 of text).
2. Estimation in finite samples: simple likelihood estimators; judging quality of estimators via MSE and unbiasedness and the use of sufficient statistics and the Rao-Blackwell theorem in this regard
3. Testing in finite samples: Constructing likelihood ratio tests (LRTs); optimality of LRTs for point null and alternative hypotheses and the Neyman-Pearson lemma
4. Interval estimation in finite samples: Inverting test statistics; pivotal quantities
5. Convergence concepts for estimators: Central limit theorem;