



THE OHIO STATE UNIVERSITY

STAT 4301

Advanced Statistical Inference (25211)

Autumn 2026

Syllabus - Instructor Information

Oh-Ran Kwon

Professional Qualifications

Ph.D. in Statistics, University of Minnesota

M.S. in Statistics, Seoul National University

B.E. in Statistics, Sungkyunkwan University

Syllabus - Required or Recommended Readings

Morris H. DeGroot and Mark J. Schervish, *Probability and Statistics*,
Pearson, ISBN: 978-0321500465.

Syllabus - Course Schedule

Week	Topics
1	Review of probability
2	Review of probability (continued), Random Variables, Discrete probability distributions
3	Discrete probability distributions (continued), Continuous probability distributions
4	Bivariate distributions, Conditional and marginal distributions
5	Functions of random variables
6	Functions of random variables (continued), Expectation and moments
7	Special distributions – Binomial, Poisson, Hypergeometric, Normal, Gamma, Beta, etc.
8	Law of large numbers, Central limit theorem
9	Estimation: method of moments and maximum likelihood estimators
10	Estimation: method of moments and maximum likelihood estimators (continued), Sufficient statistics
11	Sufficient Statistics (continued), Bayes estimators
12	Sampling distribution of estimators, Confidence intervals
13	Confidence intervals (continued), Unbiased estimators, Fisher information
14	Fisher information (continued)
15	Hypothesis testing
16	Hypothesis testing

Syllabus - University Policies

Office of Undergraduate Education - Standard Syllabus Statements

- [Academic Misconduct](#)
- [Religious Accommodations](#)
- [Accommodations for Disability and Illness](#)
- [Intellectual Diversity](#)
- [Grievances and Solving Problems](#)
- [Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct](#)
- [Copyrights](#)
- [Content Warnings](#)
- [Mental Health Support](#)
- [Resources for Military-Connected Students](#)
- [Campus-wide Class Cancellations](#)