

# MATH 4860/5880, Probability and Mathematical Statistics II

## Fall 2026

**Instructor:**

JS Lee

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**Class Web Page:**

[http://faculty.uml.edu/jongsoo\\_lee/4860F26.html](http://faculty.uml.edu/jongsoo_lee/4860F26.html)

Be sure to check often for announcements, homework assignments and other course material.

**Class Location and Time:**

Shah 306

Tuesday 6:30 - 9:20 PM

**Office Hours:**

Wednesday 2:00 - 3:30 PM

Thursday 8:00 - 9:30 AM

Or by appointment

**Text:**

- Wackerly, Chen, Loy, *Mathematical Statistics with Applications*, 8th Edition.

Will cover chapters 6 to 10, with coverage from other chapters as needed. Additional topics may be included, mainly relevant for 5880 (graduate) students.

**Overview:**

This course provides an introduction to mathematical statistics for students with background in calculus-based probability, MATH 4070/5090. As a continuation of MATH 4070/5090, we learn the concepts and techniques of mathematical statistics:

- Random sampling; sampling distributions; large sample theory including CLT
- Estimation including bias and MSE; efficiency; consistency; sufficiency; Rao-Blackwell Theorem and UMVUE; method of moments; MLE
- Hypothesis testing, including tests of mean, variance and proportions; Types I and II errors and power; p-values, Neyman-Pearson Lemma; likelihood ratio tests; chi-squared goodness-of-fit tests for tables
- Confidence intervals, for one and two sample means, proportions and variances

**Homework:**

Homework will be assigned regularly, but will NOT be collected. Instead, the solution will be available for students to check. Be sure to attempt and complete the homework problems to understand the material and to prepare for quiz/exams.

**Quiz:**

There will be regular in-class quizzes, mostly on the weeks that we do not have exams. The purpose of the quiz is to assess the student understanding of homework and course material, and thus will cover the homework (and the corresponding lecture material) due on the day. The quizzes will be closed-book and closed-notes.

**Exams:**

There will three (3) exams and a final exam (all in-class).

|             |                       |
|-------------|-----------------------|
| Exam 1:     | Tuesday, September 29 |
| Exam 2:     | Tuesday, October 27   |
| Exam 3:     | Tuesday, December 1   |
| Final Exam: | TBD (cumulative)      |

All exams are closed-book, but you may bring a limited amount of notes.

**Attendance Policy:**

Attending every class is required. You may be called upon to participate in class activities and are responsible for everything said in class. Excused absences require valid justification, and make-up works are at the discretion of the instructor.

**Academic Integrity:**

Academic dishonesty is prohibited in all programs of the University and sanctions may be imposed on any student who commits an act of academic dishonesty. Details on UML policy can be found at

- [www.uml.edu/catalog/undergraduate/policies/academic-policies/academic-integrity.aspx](http://www.uml.edu/catalog/undergraduate/policies/academic-policies/academic-integrity.aspx) (Undergraduate)
- [www.uml.edu/Catalog/Graduate/Policies/Academic-Integrity.aspx](http://www.uml.edu/Catalog/Graduate/Policies/Academic-Integrity.aspx) (Graduate)

**Course Grade (approximate):**

- 35% Quiz and Participation
- 15% Exam 1
- 15% Exam 2
- 15% Exam 3
- 20% Final Exam